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FINAL SITE INSPECTION REPORT DAVIS-MONTHAN AIR FORCE BASE TUCSON, AZ

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide



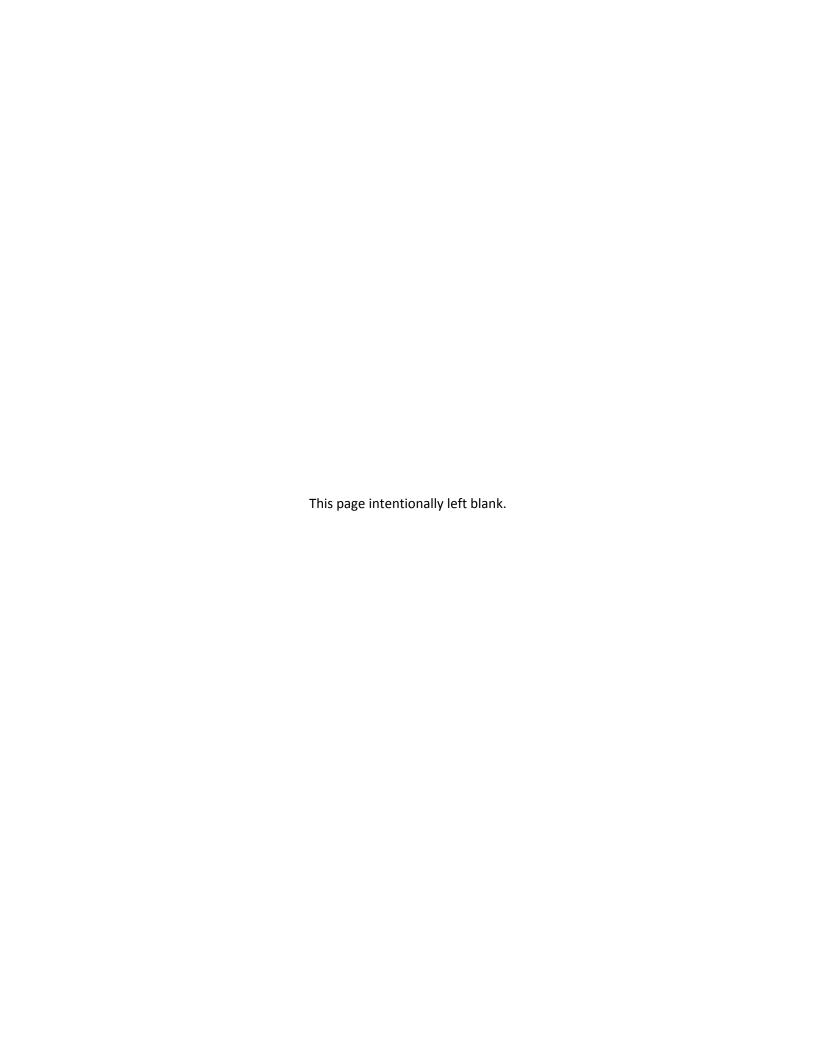
February 2019

Contract FA8903-16-D-0027 Task Order 0004

Prepared for:

Air Force Civil Engineer Center JBSA Lackland, Texas





FINAL

SITE INSPECTION REPORT

SITE INSPECTION OF AQUEOUS FILM FORMING FOAM (AFFF) RELEASE AREAS ENVIRONMENTAL PROGRAMS WORLDWIDE INSTALLATION

DAVIS-MONTHAN AIR FORCE BASE TUCSON, ARIZONA

Project No. 775303101

Prepared for:

Air Force Civil Engineer Center

Joint Base San Antonio – Lackland, Texas



Prepared by:



Amec Foster Wheeler Programs, Inc.

Contract FA8903-16-D-0027
Task Order 0004
February 2019

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Final Site Inspection Report, Davis-Monthan Air Force Base February 2019 Page ii

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ACRONYMS

ADEQ Arizona Department of Environmental Quality

AFB Air Force Base

AFCEC Air Force Civil Engineer Center
AFFF Aqueous Film Forming Foam

Amec Foster Wheeler Programs, Inc. and its affiliate Amec Foster Wheeler

Environment & Infrastructure Inc.

AMSL Above Mean Sea Level
ARCH Air Rotary Casing Hammer

ADWR Arizona Department of Water Resources

BGS Below Ground Surface
BTOC Below Top of Casing

CoC Chain-of-Custody

DL Detection Limit

DMAFB Davis-Monthan Air Force Base

DO Dissolved Oxygen
DoD Department of Defense

EC Emerging Contaminants

ft foot or feet
FTA Fire Training Area
FTS Fluorotelomer Sulfonate

Gpd/ft2 Gallons per day per square foot

HA Health Advisory
HSA Hollow Stem Auger

HDPE High-Density Polyethylene HGL HydroGeoLogic, Inc.

IDW Investigation-Derived Waste

in inch or inches

ISWP Installation-Specific Work Plan

LC-MS/MS Liquid Chromatography and Tandem Mass Spectrometry

LOD Limit of Detection
LOQ Limit of Quantitation

μg/L Micrograms per Liter mg/kg Milligrams per Kilogram

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NAD83 North American Datum of 1983 NAVD88 North American Datum of 1988

NETFOSAA N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NETFOSAA)

NMeFOSAA N-Methyl Perfluorooctanesulfonamidoacetic Acid

NTU Nephelometric Turbidity Units

ORP Oxygen Reduction Potential

PA Preliminary Assessment

PFAS Per- and Polyfluorinated Alkyl Substances

PFBS Perfluorobutanesulfonic Acid PFC Perfluorinated Compound PFDA Perfluorodecanoic Acid **PFDoA** Perfluorododecanoic Acid **PFHpA** Perfluoroheptanoic Acid **PFHxA** Perfluorohexanoic Acid **PFHxS** Perfluorohexanesulfonic Acid Perfluorononanoic Acid PFNA **PFOA** Perfluorooctanoic Acid **PFOS** Perfluorooctanesulfonic Acid PFTA Perfluorotetradecanoic Acid **PFTrDA** Perfluorotridecanoic Acid PFUnA Perfluoroundecanoic Acid PID Photoionization Detector

PVC Polyvinyl Chloride

PPE

QPP Quality Program Plan

RSL Regional Screening Level

SI Site Inspection

SIR Site Inspection Report

SOP Standard Operating Procedure

S.U. Standard Unit

THQ Total Hazard Quotient TOC Total Organic Carbon

URS URS Corporation

USAF United States Air Force

USEPA United States Environmental Protection Agency

Personal Protective Equipment

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EXECUTIVE SUMMARY

This Site Inspection (SI) Report (SIR) was prepared by Amec Foster Wheeler Programs, Inc., together with affiliate Wood Environment & Infrastructure Solutions, Inc. (formerly known as Amec Foster Wheeler Environment & Infrastructure, Inc.)¹, collectively referred to as Amec Foster Wheeler, under Contract No. FA8903-16-D-0027, Task Order 0004, to document the results of SI activities conducted at three aqueous film forming foam (AFFF) release areas, located at Davis-Monthan Air Force Base (DMAFB). The purpose of the SI was to determine, through environmental media sampling, if a release of per- and polyfluorinated alkyl substances (PFAS) has occurred at potential AFFF release areas identified by others during the Preliminary Assessment (PA) (HydroGeologic, Inc. [HGL], 2015), or by Amec Foster Wheeler during the installation scoping visit conducted at DMAFB on 1 September 2016. The data presented in this SIR were collected and evaluated in accordance with the Final Installation-Specific Work Plan (ISWP) (Amec Foster Wheeler, 2017a) and the General Quality Program Plan (QPP) (Amec Foster Wheeler, 2017b).

PFAS are a class of synthetic organofluorine compounds that possess a chemical structure that gives them unique properties, including thermal stability and the ability to repel both water and oil. These chemical properties make them useful components in a wide variety of consumer and industrial products, including non-stick cookware, food packaging, waterproof clothing, fabric stain protectors, lubricants, paints, and firefighting foams such as AFFF. AFFF concentrate contains fluorocarbon surfactants to meet required performance standards for fire extinguishing agents (Department of Defense [DoD] Military Specification MIL-F-24385F [SH], Amendment 1, 5 August 1984). The United States Air Force (USAF) began purchasing and using AFFF containing PFAS (perfluorooctanesulfonic acid [PFOS] and/or perfluorooctanoic acid [PFOA]) for extinguishing petroleum fires and during firefighting training activities in 1970. AFFF was primarily used on USAF installations at fire training areas (FTAs), but may have also been used, stored or released from hangar fire suppression systems, at firefighting equipment testing and maintenance areas, and during emergency response actions for fuel spills and/or aircraft mishaps.

The United States Environmental Protection Agency (USEPA) Office of Water issued lifetime drinking water Health Advisory (HA) values for PFOS and PFOA in May 2016 that replaced the 2009 Provisional HA values. The HA values for PFOS and PFOA are 0.07 micrograms per liter (μ g/L) for each constituent; however, when these two chemicals co-occur in a drinking water source, a conservative and health-protective approach is recommended that compares the sum of the concentrations (PFOS + PFOA) to the HA value (0.07 μ g/L). HA values are not to be construed as legally enforceable federal standards and are subject to change as new information becomes available (USEPA, 2016a and 2016b). Although the USEPA has not established HA values for PFAS in soil, the USAF calculated a residential screening level of 1.26 milligrams per kilogram (mg/kg) for PFOS and PFOA in soil, based on a total hazard quotient (THQ) of 1.0,

¹ Amec Foster Wheeler Environment & Infrastructure, Inc. changed its name on 6 April 2018 to Wood Environment & Infrastructure Solutions, Inc., to reflect Wood Group's acquisition of Amec Foster Wheeler. All resource documents created and activities conducted under Amec Foster Wheeler Environment & Infrastructure, Inc. remain in place, will be referred to Amec Foster Wheeler, and are executed under Wood Environment & Infrastructure Solutions, Inc.

using the USEPA Regional Screening Level (RSL) calculator (https://epa-prgs.ornl.gov/cgibin/chemicals/csl_search). This screening value was presented in the Final ISWP (Amec Foster Wheeler, 2017a). In March 2018, the USAF issued revised guidance, *PFAS Site Inspection Objectives and Follow-On Activities*, whereby a new residential screening level for soil and sediment of 0.126 mg/kg was calculated based on a THQ of 0.1 (USAF, 2018).

While PFOS and PFOA in groundwater are the focus of the HA and provide specific targets for the USAF to address in the SI, USEPA has also derived Tap Water RSL values for perfluorobutanesulfonic acid (PFBS) for which there is a Tier 2 toxicity value (Provisional Peer Review Toxicity Value) (USEPA, 2017a). Based on the Final ISWP (Amec Foster Wheeler, 2017a), concentrations of PFBS detected in groundwater and soil were to be compared to the Tap Water RSL of 400 μ g/L and residential RSL of 1,300 mg/kg, respectively. However, as per the USAF revised guidance issued subsequent to the ISWP, revised residential screening levels for PFBS in Tap Water of 40 μ g/L and in soil of 130 mg/kg were calculated based on a THQ of 0.1 and will be used for comparison in this SIR (USAF, 2018).

The Arizona Department of Environmental Quality (ADEQ) has not issued screening criteria or promulgated standards for any PFAS constituent to date.

DMAFB is in Pima County, within the city limits of Tucson, Arizona. The Strategic Air Command stationed two B-29 bombardment groups at the facility in 1946, which remained until it was transferred to the Tactical Air Command in 1976. The 355th Wing is currently the host unit at DMAFB. The Wing's missions are to train A-10 and OA-10 pilots and to provide support and forward air control to ground forces worldwide. The 355th Wing also provides command, control, and communications countermeasures in support of tactical forces with the EC-130H aircraft (URS, 2011).

The developed portions of DMAFB include aviation support, industrial, institutional, commercial, residential, public and recreational facilities, agricultural land, and an airfield with an associated 13,645-feet (ft) runway. In addition to the main installation, DMAFB includes the Air Force Materiel Command's Aerospace Maintenance and Regeneration Group; an industrial complex within the contiguous property that provides long-term aircraft preservation and storage, as well as parts reclamation (URS, 2011).

HGL was contracted by the Air Force Civil Engineer Center (AFCEC) to prepare a PA of FTA and non-FTA sites at DMAFB to identify locations where PFAS may have been used and released into the environment, and to provide an initial assessment of possible migration pathways and receptors of potential contamination (HGL, 2015). The PA Report identified 37 potential AFFF release areas, six of which were identified for SI. Four of the six areas are airfield plane crash sites which were combined into one AFFF release area. The three AFFF release areas for SI are listed below.

AFFF Release Area 1: FT-03 (Former FTA)

• AFFF Release Area 2: Airfield Crash Sites

i. Plane Crash 1: F-16 crash (1992)

ii. Plane Crash 2: F-86 crash (2006)

- iii. Plane Crash 3: Southern end of runway crash (1990s)
- iv. Plane Crash 4: Cessna crash (1990s)
- AFFF Release Area 3: Stormwater Outfall Canal

The specific objectives of the SI were as follows:

- Determine if PFAS are present in soil, groundwater, and/or surface water/sediment at AFFF release areas selected for SI;
- Determine if PFOS and PFOA concentrations in soil exceed the calculated RSL, based on a residential exposure scenario, of 0.126 mg/kg, and if PFBS concentrations in soil exceed the USEPA residential RSL of 130 mg/kg;
- Determine if concentrations of PFOS, PFOA, or the sum of PFOS and PFOA in groundwater exceed the USEPA HA value of 0.07 μg/L, and if PFBS concentrations in groundwater exceed the USEPA Tap Water RSL of 40 μg/L;
- Determine if concentrations of PFOS or PFOA in sediment exceed the calculated RSL, based on a residential exposure scenario, of 0.126 mg/kg; and,
- Identify potential receptor pathways with immediate impacts to human health (immediate impact to human health is considered consumption of drinking water with PFOS/PFOA above the USEPA HA value, or PFBS above the USEPA Tap Water RSL).

PFAS Analytical Results

Soil was collected for laboratory analysis at AFFF Release Areas 1, 2, and 3. PFOS and PFOA were detected in surface soil at concentrations exceeding the calculated RSLs based on a residential exposure scenario at AFFF Release Area 1. PFOS and PFOA were not detected in subsurface soil at concentrations exceeding the calculated RSLs based on a residential exposure scenario at any Release Areas. PFBS was not detected at concentrations above the USEPA RSL at any Release Areas.

Groundwater was collected for laboratory analysis at AFFF Release Areas 1, 2, and 3. PFOS, PFOA and/or PFOS+PFOA were not detected in groundwater at concentrations exceeding the USEPA HAs and PFBS was not detected at concentrations above the USEPA Tapwater RSL at any Release Areas.

Sediment was collected for laboratory analysis at AFFF Release Areas 1 and 3. PFOS was detected in sediment at a concentration exceeding the calculated RSL based on a residential exposure scenario at AFFF Release Area 1. PFOA and PFBS were not detected at concentrations above the respective RSLs at any Release Areas.

Soil Receptors

Based on the SI results, potentially complete soil exposure pathways exist at AFFF Release Area 1. Potential human exposure receptors from PFOS and PFOA in surface soil include USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers. Further investigation and evaluation of specific exposure conditions is required to determine if exposure pathways are complete.

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Groundwater Receptors

PFOA in groundwater did not exceed the USEPA HA value of $0.07~\mu g/L$ for PFOS, PFOA, and/or the sum of PFOS/PFOA, across the installation. Based on the current understanding of the conceptual site model, higher concentrations of PFOS/PFOA detected in Tucson Water supply wells downgradient of DMAFB may be attributable to the upgradient proximity of the Stormwater Outfall Canal and vertical migration within the aquifer in response to historical pumping regimes.

While the results of the SI do not necessarily indicate any migration of contaminants off base, based on the CSM and the levels of PFOS/PFOA in the Tucson Water municipal supply wells, additional investigation in the area of the Stormwater Outfall Canal is warranted. Installation and sampling of water table and deeper aquifer monitoring wells located downgradient of the Stormwater Outfall Canal at the northern base boundary is recommended to determine if PFAS is present in groundwater at the installation boundary, upgradient of Tucson Water supply wells.

Sediment Receptors

PFOS was detected in sediments collected from AFFF Release Area 1 at concentrations exceeding the calculated RSL. Potential exposure receptors include USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers that may come into contact with sediment at this AFFF Release Area. Further investigation and evaluation of specific exposure conditions is required to determine if exposure pathways are complete.

1.0 INTRODUCTION

This Site Inspection (SI) Report (SIR) was prepared by Amec Foster Wheeler Programs, Inc., together with affiliate Wood Environment & Infrastructure Solutions, Inc. (formerly known as Amec Foster Wheeler Environment & Infrastructure, Inc.)², collectively referred to as Amec Foster Wheeler, under Contract No. FA8903-16-D-0027, Task Order 0004, to document the results of SI activities conducted at three aqueous film forming foam (AFFF) release areas located at Davis-Monthan Air Force Base (DMAFB). The purpose of the SI was to determine, through environmental media sampling, if a release of per- and polyfluorinated alkyl substances (PFAS) has occurred at potential AFFF release areas identified by others during a Preliminary Assessment (PA) (HydroGeologic Inc. [HGL], 2015), or during the installation scoping visit conducted by Amec Foster Wheeler on 1 September 2016 and the Sampling Design and Rationale Teleconference held on 19 December 2016.

The data presented in this SIR were collected and evaluated in accordance with the Final Installation-Specific Work Plan (ISWP) (Amec Foster Wheeler, 2017a) and the General Quality Program Plan (QPP) (Amec Foster Wheeler, 2017b).

1.1 PER- AND POLY-FLUORINATED ALKYL SUBSTANCES OVERVIEW

PFAS are a class of synthetic organofluorine compounds that possess a chemical structure that gives them unique properties, including thermal stability and the ability to repel both water and oil. These chemical properties make them useful components in a wide variety of consumer and industrial products, including non-stick cookware, food packaging, waterproof clothing, fabric stain protectors, lubricants, paints, and firefighting foams such as AFFF. AFFF concentrate contains fluorocarbon surfactants to meet required performance standards for fire extinguishing agents (Department of Defense [DoD] Military Specification MIL-F-24385F [SH], Amendment 1, 5 August 1984). The United States Air Force (USAF) began purchasing and using AFFF containing PFAS (perfluorooctanesulfonic acid [PFOS] and/or perfluorooctanoic acid [PFOA]) for extinguishing petroleum fires and during firefighting training activities in 1970, as confirmed by the following federal government documents:

- Military Specification for AFFF (MIL-F-24385), formally issued in 1969;
- General Accounting Office determination on sole source award protest to provide AFFF to the Navy in December 1969; and,
- A History of USAF Fire Protection Training at Chanute Air Force Base, 1964-1976 (Coates, 1977).

² Amec Foster Wheeler Environment & Infrastructure, Inc. changed its name on 6 April 2018 to Wood Environment & Infrastructure Solutions, Inc., to reflect Wood Group's acquisition of Amec Foster Wheeler. All resource documents created and activities conducted under Amec Foster Wheeler Environment & Infrastructure, Inc. remain in place, will be referred to Amec Foster Wheeler, and are executed under Wood Environment & Infrastructure Solutions, Inc.

AFFF was primarily used on USAF installations at fire training areas (FTAs), but may have also been used, stored or released from hangar fire suppression systems, at firefighting equipment testing and maintenance areas, and during emergency response actions for fuel spills and/or aircraft mishaps.

The United States Environmental Protection Agency (USEPA) Office of Water issued lifetime drinking water Health Advisory (HA) values for PFOS and PFOA in May 2016 that replaced the 2009 Provisional HA values. The HA values for PFOS and PFOA are 0.07 micrograms per liter (μ g/L) for each constituent; however, when these two chemicals co-occur in a drinking water source, a conservative and health-protective approach is recommended that compares the sum of the concentrations (PFOS + PFOA) to the HA value (0.07 μ g/L). The HA values are non-regulatory concentrations of drinking water contaminants at or below which adverse health effects are not anticipated to occur over specific exposure durations (e.g., 1 day, 10 days, and a lifetime). They serve as informal technical guidance to assist federal, state, and local officials, and managers of public or community water systems in protecting public health when emergency spills or other contamination situations occur. A HA document provides information on the environmental properties, health effects, analytical methodology, and treatment technologies for removing drinking water contaminants. HA values are not to be construed as legally enforceable federal standards and are subject to change as new information becomes available (USEPA, 2016a and 2016b).

The USEPA has not published Regional Screening Levels (RSLs) for PFOS or PFOA for soil or sediment; however; as per the Final ISWP (Amec Foster Wheeler, 2017a), a residential screening level of 1.26 milligrams per kilogram (mg/kg) for PFOS and PFOA was derived using the USEPA RSL calculator (https://epa-prgs.ornl.gov/cgi-bin/chemicals/ csl search), based on a total hazard quotient (THQ) of 1.0. The toxicity value input for the calculator is the Tier 3 value reference dose of 0.00002 mg/kg per day derived by the USEPA in their Drinking Water HA values for both PFOS and PFOA (USEPA, 2016a and 2016b). In March 2018, the USAF issued revised guidance, *PFAS Site Inspection Objectives and Follow-On Activities*, whereby a new residential screening level for soil and sediment of 0.126 mg/kg was calculated based on a THQ of 0.1 (USAF, 2018).

While PFOS and PFOA are the focus of the HA and provide specific targets for the USAF to address in the SI, USEPA has also derived RSL values for perfluorobutanesulfonic acid (PFBS) for which there is a Tier 2 toxicity value (Provisional Peer Review Toxicity Value) (USEPA, 2017a). Based on the Final ISWP (Amec Foster Wheeler, 2017a), concentrations of PFBS detected in groundwater and soil were to be compared to the Tap Water RSL of 400 μ g/L and residential RSL of 1,300 mg/kg, respectively. However, as per the USAF revised guidance issued subsequent to the ISWP, revised RSLs for PFBS in Tap Water of 40 μ g/L and in soil of 130 mg/kg were calculated based on a THQ of 0.1 and will be used for comparison in this SIR (USAF, 2018). The Arizona Department of Environmental Quality (ADEQ) has not issued promulgated standards for any PFAS to date.

Table 1.1-1 below presents the screening values for comparing analytical results for PFOS, PFOA, and PFBS.

Table 1.1-1. Regulatory Screening Values

	Chemical Abstract Number	USEPA Regional Screening Level Table (November 2017) ^a		Calculated RSL for Soils and	USEPA Health Advisory for Drinking Water
Parameter		Residential Soil and Sediments (mg/kg)	Tap Water (μg/L)	Sediments ^b (mg/kg)	(Surface Water or Groundwater) ^c (μg/L)
PFOS	1763-23-1	NL	NL	0.126	0.07 ^d
PFOA	335-67-1	NL	NL	0.126	0.07
PFBS	375-73-5	130	40	NL	NL

Notes:

- a USEPA Regional Screening Levels (November, 2017a) [https://semspub.epa.gov/work/HQ/197025.pdf].
- b Screening levels calculated using the USEPA Regional Screening Level calculator (https://epa-prgs.ornl.gov/cgibin/chemicals/csl_search)
- c USEPA, May 2016a. "Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS)" and USEPA, May 2016b. "Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)."
- d When both PFOA and PFOS are both present, the combined concentrations of PFOA and PFOS should be compared with the 0.07 µg/L health advisory level.

mg/kg - milligrams per kilogram

μg/L - micrograms per liter

NL - not listed

PFBS - perfluorobutanesulfonic acid

PFOA - perfluorooctanoic acid

PFOS - perfluorooctanesulfonic acid

RSL - Regional Screening Level

USEPA - United States Environmental Protection Agency

1.2 PROJECT OBJECTIVES

In accordance with DoD Instruction 4715.18, "Emerging Contaminants (ECs)" (DoD, 2009), the *Interim AF Guidance on Sampling and Response Actions for Perfluorinated Compounds at Active and Base Realignment and Closure Installations* (USAF, 2012), and the *SAF/IE Policy on Perfluorinated Compounds of Concern* (USAF, 2016) the USAF will:

- 1) Identify locations where there is a reasonable expectation that there may have been a release of PFAS (defined below) associated with USAF actions;
- 2) Determine if there is unacceptable risk to human health and the environment; and,
- 3) Address releases that pose an unacceptable risk, including offsite migration.

The primary objectives of this SI were to:

• Determine if PFOS, PFOA, or PFBS are present in soil, groundwater, or sediment at AFFF release areas selected for SI;

- Determine if PFOS and PFOA concentrations in soil or sediment exceed the calculated RSL, based on a residential scenario, of 0.126 mg/kg, and if PFBS concentrations in soil exceed the USEPA residential RSL of 130 mg/kg;
- Determine if PFOS, PFOA, or sum of PFOS and PFOA concentrations in groundwater exceed the USEPA HA value of 0.07 μg/L, and if PFBS concentrations in groundwater exceed the USEPA Tap Water RSL of 40 μg/L; and,
- Identify potential receptor pathways with immediate impacts to human health (immediate impact to human health is considered consumption of drinking water with PFOS/PFOA above the USEPA HA value, or PFBS above the USEPA Tap Water RSL).

1.3 PROJECT SCOPE

AFFF release areas were selected for SI at DMAFB based on research conducted by HGL (2015) during a PA, the installation scoping visit conducted by Amec Foster Wheeler on 1 September 2016 and the Sampling Design and Rationale Teleconference held on 19 December 2016.

The PA report identified 37 potential AFFF release areas, six of which were identified for SI. Four plane crash sites identified in the PA were combined into one area. The resulting three AFFF release areas for SI at DMAFB are as follows:

- AFFF Release Area 1: FT-03 (Former FTA)
- AFFF Release Area 2: Airfield Crash Sites
 - i. Plane Crash 1: F-16 crash (1992)
 - ii. Plane Crash 2: F-86 crash (2006)
 - iii. Plane Crash 3: Southern end of runway crash (1990s)
 - iv. Plane Crash 4: Cessna crash (1990s)
- AFFF Release Area 3: Stormwater Outfall Canal

Media evaluated at each area included surface and subsurface (vadose zone) soil, sediment, and groundwater collected from new and existing monitoring wells.

This SIR discusses and provides a comparison of the analytical results to screening values for PFOS, PFOA, and PFBS in soil, groundwater, and sediment. The remaining PFAS do not have screening values; therefore, only the results of PFOS, PFOA, and PFBS are discussed in detail and presented on figures. Analytical data for all PFAS are included in the tables.

2.0 AFFF RELEASE AREA BACKGROUND

2.1 SITE LOCATION AND SETTING

DMAFB is located in Pima County, within the city limits of Tucson, Arizona (**Figure 2.1-1**). The facility was established in 1925 and encompasses approximately 11,000 acres (URS Corporation [URS],2011).

2.2 SITE HISTORY

DMAFB was originally established as Tucson Landing Field in 1925. The Strategic Air Command stationed two B-29 bombardment groups at the facility in 1946, which remained until it was transferred to the Tactical Air Command in 1976. The 355th Wing is currently the host unit at DMAFB. The Wing's missions are to train A-10 and OA-10 pilots and to provide support and forward air control to ground forces worldwide. The 355th Wing also provides command, control, and communications countermeasures in support of tactical forces with the EC-130H aircraft (URS, 2011).

The total population of the installation is approximately 12,200, composed of approximately 7,000 military personnel, 3,200 dependents, and an estimated 2,000 civilian non-residents that commute to the installation daily. The developed portions of DMAFB include aviation support, industrial, institutional, commercial, residential, public and recreational facilities, agricultural land, and an airfield with an associated 13,645 foot (ft) long runway. In addition to the main installation, DMAFB includes the Air Force Materiel Command's Aerospace Maintenance and Regeneration Group; an industrial complex within the contiguous property that provides long-term aircraft preservation and storage, as well as parts reclamation (URS, 2011).

2.3 PREVIOUS INVESTIGATIONS

HGL was contracted by Air Force Civil Engineer Center (AFCEC) to prepare a PA of FTA and non-FTA sites at DMAFB to identify locations where PFAS may have been used and released into the environment, and to provide an initial assessment of possible migration pathways and receptors of potential contamination (HGL, 2015). Thirty-seven potential AFFF release areas were identified during the PA research, six of which were identified for SI and are listed below:

- Site FT-03
- Plane Crash 1
- Plane Crash 2
- Plane Crash 3
- Plane Crash 4
- Stormwater Outfall Canal

These six areas have been grouped into three SI investigation areas (Figure 2.3-1):

1) Site FT-03 is a former FTA located east of the airfield within the boundaries of the active FTA. The former FTA consisted of three circular unlined earthen berms and was used for training exercises from 1968 until the active FTA was established in March 1989. From 1968 to 1972, the

- exercises were conducted once per week and from 1972 to 1989 the exercises were conducted once per month. An unknown amount of AFFF was used to extinguish fires during training exercises from 1970 to 1989.
- 2) Crash Sites 1, 2, 3, and 4: An unknown amount of AFFF was discharged to extinguish fires at four crash incident sites located adjacent to the active runway.
 - a. Plane Crash 1: In 1992, an F-16 crash-landed and AFFF foam was applied to the north end of the runway. The AFFF was applied to the runway surface and most likely allowed to dry and/or evaporate.
 - b. Plane Crash 2: In 2006, an F-86 aircraft crash-landed near the mid-point of the runway, north of Taxiway A3. Approximately 30 gallons of AFFF was applied to the runway surface and most likely allowed to dry and/or evaporate.
 - c. Plane Crash 3: A plane crash in the early- to mid-1990s occurred near the southern end of the runway south of Taxiway A4. Less than 50 gallons of AFFF was used to extinguish an aircraft fire and was left to dissipate where it was applied.
 - d. Plane Crash 4: In the early- to mid-1990s, a Cessna aircraft crash-landed short of the runway. Less than 15 gallons of AFFF was applied to the desert area south of the runway to extinguish the aircraft fire and was left to dissipate.
- 3) Stormwater Outfall Canal: The unlined canal receives surface water from the FTA, flightline and plane crash locations. Water, possibly containing AFFF, was received at each of the two firehose washout locations. Hose washouts were conducted on the North Ramp apron and on the 79th Ramp apron. The washout waters were discharged into stormwater drains that are routed to the outfalls in the Stormwater Canal. The surface drainage across the installation is routed to the Stormwater Outfall Canal then to the Tucson Diversion Channel, which is a tributary of the Santa Cruz River.

3.0 FIELD ACTIVITIES AND ANALYTICAL PROTOCOL

SI activities were conducted at DMAFB from 10 October 2017 to 29 January 2018 at the three AFFF Release Areas identified during the PA (HGL, 2015), Amec Foster Wheeler installation scoping visit, and Sampling Design and Rationale Teleconference (**Figures 2.3-1**). Sample locations were determined following discussions between Amec Foster Wheeler, DMAFB and AFCEC personnel, and were documented in the Final ISWP (Amec Foster Wheeler, 2017a). Media sampled during the SI included surface soil, subsurface soil, sediment, and groundwater collected from new and existing monitoring wells.

Photographic documentation of the SI activities is provided in **Appendix A** and field documentation is provided in **Appendix B**. Inspection activities were recorded by field personnel on field activity daily logs (**Appendix B-1**), and daily PFAS protocol checklists were completed to ensure PFAS were not introduced by Amec Foster Wheeler employees or subcontractors (**Appendix B-2**). Tailgate safety meetings were also conducted each morning prior to beginning work (**Appendix B-3**).

Soil Boring Advancement and Soil Sample Collection

Three deep borings were advanced using air rotary casing hammer (ARCH) drilling techniques for soil sample collection and installation of new monitoring wells in general accordance with Standard Operating Procedure (SOP) AFW-02, *Soil Sampling* and AFW-04, *Monitoring Well Installation* (Appendix D, General QPP), respectively. Five additional borings were advanced, two shallow borings using hollow stem auger (HSA) drilling techniques and three surface soil borings using a hand auger, for soil sample collection. All borings, except for the surface soil borings, were advanced by an Arizona-licensed driller, Yellow Jacket Drilling, Inc. of Phoenix, Arizona. HSA and ARCH borings were initially cleared to a depth of 5 ft below ground surface (bgs) using a hand auger prior to being advanced to total depth.

Three surface soil borings were advanced using a decontaminated hand auger by Amec Foster Wheeler field personnel from ground surface to maximum depths of 1 ft bgs. Two shallow soil borings were advanced using HSA and continuously cored from ground surface to maximum depths of 31.5 ft bgs using decontaminated 2-ft split spoon samplers. Soil cores were field-screened with a photoionization detector (PID) equipped with a 10.6 electron volt lamp for volatile organic vapors and logged by a qualified geoscientist in accordance with the Unified Soil Classification System. The three deep borings for new monitoring well installations were advanced using ARCH to maximum depths of 371 ft bgs.

The ARCH drilling system consisted of a non-rotating flush-threaded 10-inch (in) casing driven in conjunction with a conventional air rotary drill string with a 9 5/8-in diameter tricone bit advanced through 12-inch steel conductor casings cemented in place from ground surface to approximately 21-ft bgs. Cuttings and water added during drilling for dust control were cleared from the hole by bit rotation and air circulation and discharged through a hose into a cyclone to separate the air from the formation cuttings and facilitate drill cuttings containment. Sample intervals were cored using a wire line coring system with down hole hammer equipped with split spoon samplers, approximately 2.5-in outside

diameter and 2-ft in length. Drill cuttings were collected from the cyclone at least every 10 ft for PID screening and logging.

Soil samples for laboratory analysis were extracted from the hand auger bucket, split spoon sampler, or drill cuttings using nitrile gloves and transferred directly into laboratory-provided high-density polyethylene (HDPE) containers, in accordance with the ISWP and SOP AFW-02 (PFAS), *Soil Sampling* (Appendix D, General QPP). Sample containers were sealed, labeled, packed into ice-filled coolers, and delivered under chain-of-custody (CoC) to SGS Accutest in Orlando, Florida for PFAS analysis, and CT Laboratories in Baraboo, Wisconsin for physiochemical properties analysis.

The resulting soil boring information, PID readings, lithologic data, and analytical soil sample collection intervals are included on soil boring/monitoring well records, provided in **Appendix B-4**. Analytical soil sample collection details (sample ID numbers, date/time collected, and depths) are recorded on daily field activity logs and on soil boring/monitoring well records provided in **Appendix B-1** and **Appendix B-4**. A basewide geologic cross section developed from the lithologic data collected during SI well installation activities is provided on **Figure 3.0-1**.

Monitoring Well Installation and Development

Three new permanent groundwater monitoring wells were installed in accordance with SOP AFW-04, *Monitoring Well Installation* (Appendix D, General QPP), one at each of the AFFF release areas. Monitoring well design was based on observed depth to water at the time of drilling and geologic conditions encountered. New monitoring wells were constructed of threaded 4-in diameter, Schedule 80 polyvinyl chloride (PVC) blank casing sections, 20-ft sections of 0.020-in machine slotted 4-inch diameter Schedule 80 PVC screen, and PVC end caps, in accordance with the ISWP. Stainless steel centralizers were installed every 50 ft from the bottom of the blank casing to ensure proper placement inside the borehole.

The well strings were suspended in tension from the surface by means of a landing clamp during placement of annular materials. The filter pack was placed in the annular space by pouring it down the inside of the drive casing from the surface. Size 10/20 mesh, clean Colorado Silica filter sand was installed from the bottom of the open borehole to 3 ft above the top of the screen interval. When the filter pack reached the desired depth level, the well screened interval was surged until no settlement of the sand pack was observed during sounding. After placement of the filter pack was completed, a minimum 3-ft Quik-Gel Baroid bentonite chip transition seal was placed above the filter pack sand. The bentonite seal was allowed to hydrate completely before placement of remaining annular materials in the borehole. The annular seal consisted of a cement bentonite grout mixture generally containing five to six gallons of clean water mixed with each 94-pound bag of Portland cement and approximately 5 percent by weight of bentonite (4.7 pounds of bentonite per 94 pounds of Portland cement). The cement bentonite grout was placed in approximately 100 ft lifts from the top of the transition seal to within 5 ft of surface grade. The upper 5 ft of the boreholes inclusive of the remaining annular space were sealed with cement, followed by 1 ft of concrete to surface. The wells were completed with a concrete pad base and flush mount well vault. New monitoring well construction details are recorded on well construction forms, provided in

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Appendix B-5 and summarized in **Table 3.0-1**. **Table 3.0-1** also includes available well construction data for existing monitoring wells sampled during this SI.

New and existing monitoring wells were developed a minimum of 24 hours after completion, in accordance with SOP AFW-05, *Monitoring Well Development* (Appendix D, General QPP). The wells were developed by surging, bailing, and pumping. Surging was performed using a surge block, which consisted of a solid piston with a rubber flange attached to the bottom of a drop pipe. The surge block was lowered and raised multiple times within the casing in stages to surge water into and out of the well screen openings. Formation solids brought in through the well screen during surging were removed from the bottom of the well using a stainless-steel bailer. Following surging and bailing, the wells were pumped using a stainless-steel Grundfos electric submersible pump. Pump development was completed by pumping the well screen intervals in stages until stable water quality parameters were reached.

Development water quality parameters (pH, specific conductance, temperature, oxidation-reduction potential [ORP], dissolved oxygen [DO], and turbidity) were measured using a calibrated water quality meter and recorded on well development logs, provided in **Appendix B-6**. A minimum of three saturated casing volumes of water were purged, and development continued until the field water quality parameters stabilized and/or water is generally sediment-free or clear (less than 50 nephelometric turbidity units (NTU)). Water quality meter calibration forms are provided in **Appendix B-7**.

Surveying

Soil borings, newly installed, and existing monitoring wells were surveyed by an Arizona Licensed Professional Surveyor (Amec Foster Wheeler, Phoenix, Arizona) for horizontal coordinates, ground surface elevation, and top-of-casing elevation, where applicable (**Table 3.0-1**; **Appendix E**). Horizontal coordinates were surveyed based on Arizona State Plane Coordinate System, East Zone, United States Survey Feet, North American Datum of 1983 (NAD83). Groundwater surface elevations were calculated relative to surveyed top-of-casing elevations based on North American Vertical Datum of 1988 (NAVD88).

Groundwater Elevations

Depth to water measurements were recorded from new and existing monitoring wells prior to groundwater purging and sampling, and groundwater elevations were calculated relative to top of casing elevations (**Table 3.0-2**). Depth to groundwater on 29 January 2018 at Davis-Monthan AFB ranged from 282.49 to 350.49 ft below top of casing (btoc), with the calculated groundwater elevations ranging from 2263.03 to 2428.95 ft above mean sea level (amsl) (**Table 3.0-2**). Local groundwater flow varies depending on proximity to local production wells; however, the general groundwater flow direction at DMAFB is to the northwest as depicted on **Figure 3.0-2**.

Groundwater Sampling

The groundwater sampling program included the collection of groundwater samples for laboratory chemical analysis of PFAS from three new monitoring wells and four existing monitoring wells. Samples were collected using low-flow groundwater sampling methods with a submersible Grundfos pump

outfitted with PVC piping or utilizing existing submersible pumps that had been previously installed. The PVC was connected to galvanized steel connections, a brass flow meter, and a brass discharge valve at a galvanized steel tee which was connected to a flow-through cell by HDPE tubing, whereby recovered groundwater was monitored for pH, temperature, specific conductivity, DO, and ORP as depicted in Photo 19, **Appendix A**. Turbidity was measured with a separate turbidity meter.

Groundwater samples were collected after they achieved stabilization criteria. At the following wells within AFFF Area 2, the three turbidity measurements before sampling were under 10 NTU, but not with 10% of the previous reading: MW02001, ST-35-MW-40, ST-35-MW-42, ST-35-MW-43, ST-35-MW-44.

Groundwater sampling equipment was calibrated prior to use, with the resulting data recorded on water quality sampling instrument calibration forms contained in **Appendix B-7**. Depth to water measurements and field parameters were monitored until groundwater indicator parameters reached stabilization criteria in accordance with SOP AFW-03 (PFAS)-*Groundwater Sampling* (Appendix D, General QPP). The flow-through cell was then removed and groundwater samples were collected directly into laboratory-provided HDPE containers from the brass discharge port. The sample containers were sealed, labeled, packed on ice in an insulated cooler, and delivered to SGS Accutest under CoC protocol. Groundwater sampling activities were documented on groundwater sampling logs provided in **Appendix B-8**.

Sediment Sampling

Sediment samples were collected during the SI to assess the presence or absence of PFAS along the Stormwater Outfall Canal and the drainage slope of the fire training rings associated with AFFF Release Area 1 (FT-03 [Former Fire Training Area]) and 3 (Stormwater Outfall Canal). Samples were collected with a HDPE cup mounted on an extendable pole or with a stainless-steel spoon and decanted into laboratory-provided containers, in accordance with SOP AFW-07 *Sediment Sampling* as described in Appendix D of the General QPP (Amec Foster Wheeler, 2017b). The sample containers were sealed, labeled, packed on ice in an insulated cooler, and delivered to SGS Accutest under CoC protocol. Sample collection data was documented on sediment sample collection logs provided in **Appendix B-9**.

Surface Water Sampling

Four proposed surface water samples, SW01001 (AFFF Release Area 1), SW03001, SW03002, SW03003, and SW03004 (AFFF Release Area 3) were not collected. This was attributed to the lack of water in the drainage areas and the overall arid conditions observed during the SI.

Total Sample Counts

The following total sample counts for each media (including field duplicate samples) during SI activities at Davis-Monthan AFB are listed below:

 Twenty soil samples (including two duplicate samples) were collected at eight soil boring locations during the SI;

- Eight groundwater samples (including one duplicate sample) were collected from three new monitoring wells and four existing monitoring wells during the SI; and,
- Six sediment samples (including one duplicate sample) were collected from the Stormwater Outfall Canal and the drainage depression at FT-03 during the SI.

Samples collected during the SI were analyzed for the following 16 PFAS compounds:

- PFOS;
- PFOA;
- PFBS;
- Perfluoroheptanoic acid (PFHpA);
- Perfluorohexanesulfonic acid (PFHxS);
- Perfluorononanoic acid (PFNA);
- N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA);
- N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA);
- Perfluorodecanoic acid (PFDA);
- Perfluorotetradecanoic acid (PFTA);
- Perfluorododecanoic acid (PFDoA);
- Perfluorohexanoic acid (PFHxA);
- Perfluorotridecanoic acid (PFTrDA);
- Perfluoroundecanoic acid (PFUnA);
- 6:2 fluorotelomer sulfonate (FTS); and,
- 8:2 FTS.

Soil, groundwater, and sediment samples were analyzed by SGS Accutest in Orlando, Florida, a DoD Environmental Laboratory Accreditation Program accredited laboratory. Samples were analyzed by Modified USEPA Method 537 using Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS). The LC-MS/MS method provides acceptable detection limits to confirm the presence of PFAS listed above. The laboratory analytical reports for the PFAS samples collected during the SI are included in **Appendix C**.

Analytical results for PFOS, PFOA, and PFBS are discussed in the following sections, while the analytical results for the remaining PFAS constituents are tabulated and provided at the conclusion of this SIR.

Co-occurrence of PFOS and PFOA (PFOS + PFOA) in aqueous samples was reported using the following guidelines:

- If PFOS and PFOA are both detected in concentrations at or above the laboratory detection limit (DL) in groundwater, then the reported concentration for PFOA was added to the reported concentration for PFOS.
- 2. If only PFOS or only PFOA is detected at or above the DL in groundwater, then the concentration of the detected analyte only is reported.

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3. If neither PFOA nor PFOS are detected at concentrations at or above the DL, then co-occurrence was reported as *Not Detected*.

One composite surface soil sample and one composite subsurface soil sample were also collected at each AFFF release area where soil sampling was conducted and submitted to CT Laboratories in Baraboo, Wisconsin for laboratory analysis of physiochemical properties, including soil pH (USEPA Method 9045B), particle size analysis (ASTM International D422), and total organic carbon (TOC) content (Lloyd Kahn 9060A Method). The particle size analysis was subcontracted to Mi-Tech Services, Inc. in Weston, Wisconsin. The laboratory analytical reports for the physiochemical properties samples collected during the SI are included in **Appendix C**.

Data Validation and Usability Assessment

Analytical laboratory data from soil and groundwater samples analyzed for PFAS were validated in February 2018.

Amec Foster Wheeler evaluated a total of 544 data records from field samples collected at Davis-Monthan AFB during the validation. Amec Foster Wheeler J or UJ qualified 100 records (18.4%) as estimated values because of low surrogate recoveries, analyte concentrations between the DL and the limit of quantitation (LOQ), and/or field duplicate imprecision. Amec Foster Wheeler also, Q qualified 2 records (0.4%) because of target analyte detections in associated equipment blanks and 100% of the data should be considered usable, meeting the QPP-specified 90% completeness goal.

For the areas sampled in this SI, the decision to advance each of the areas for further investigation was based on non-qualified data. A description of the data validation scope, procedures, observations and actions is presented in the Data Validation Report provided in **Appendix D**.

Investigation-Derived Waste

Investigation-Derived Waste (IDW) consisted of soil cuttings and water from soil boring advancement, well development water, groundwater sampling purge water, equipment decontamination water, disposable personal protective equipment (PPE), and other miscellaneous refuse. Used PPE and other miscellaneous refuse was placed in plastic bags and discarded into an on-site sanitary trash container for disposal at a sanitary landfill. Soil IDW consisting of drill cuttings generated from the shallow soil borings were placed back in the boreholes after sampling was completed. The remaining drill cuttings for all borings were containerized into six 20-cubic yard open-top roll off bins and transported to the DMAFB Landfill 01 designated staging area pending analysis and disposal. Liquid IDW generated during the SI was containerized into a 4,900-gallon poly tanks with spillguards pending analysis and disposal generated during the SI. The one poly tank is stored just outside the FT-03, to the northwest, which was the designated area pending analysis and disposal. The samples were submitted to SGS Accutest in Orlando, Florida for laboratory analysis of PFAS, volatile organic compounds, semi-volatile organic compounds, pesticides, herbicides, and metals, polychlorinated biphenyls, total petroleum hydrocarbons (gasoline

range organics and diesel range organics), flashpoint, pH, sulfide, and cyanide. IDW photo logs, analytical reports, signed profiles and IDW transportation/disposal documentation are provided in **Appendix F**.

A detailed description of sampling locations and results at each AFFF release area is provided in the following sections.

3.1 AFFF RELEASE AREA 1: FT-03 (FORMER FIRE TRAINING AREA)

AFFF Release Area 1 consisted of three unlined circular, bermed former burn pits where AFFF was used during training activities. Exercises using AFFF occurred weekly from 1970-1972 and monthly from 1972 to 1989.

3.1.1 Sample Location and Methodologies

3.1.1.1 Soil Samples

Three soil borings (MW01001, SB01002, and SB01003) were advanced between 16 October 2017 and 26 October 2017 within the footprint of former burn pits where AFFF may have been released (**Figure 3.1-1**). SB01002 was advanced within the footprint of the south fire ring to a depth of 31.5 ft bgs and SB01003 was advanced within the footprint of the east fire ring to a depth of 31 ft bgs. MW01001 was advanced below the water table within the west fire ring to a depth of 371 ft bgs. Surface soil samples were collected from all soil borings MW01001, SB01002, and SB01003 at 0 to 1 ft bgs, for PFAS analysis and one composite sample was taken for TOC, pH, and particle size analysis of the surface soil. Subsurface soil samples were collected from 29 to 30 ft bgs for PFAS analysis at SB01002 and SB01003. Subsurface soil samples were collected from the intervals 29 to 30, 170 to 171, and 350 to 351 ft bgs, for PFAS analysis at MW01001 and composited for TOC, pH, and particle size analysis. Groundwater was encountered at 353 ft bgs during boring advancement.

3.1.1.2 Groundwater Samples

A permanent monitoring well was installed in the soil boring for MW01001 between 27 and 29 October 2017 to assess PFAS concentrations in groundwater beneath FT-03 (**Figure 3.1-1**). The new monitoring well was developed on 2 January 2018 and sampled on 3 January 2018.

3.1.1.1 Sediment Samples

One sediment location (SD01001) was sampled on 26 October 2017 from a low-lying depression located downslope of the fire training rings, to determine the presence of residual PFAS (**Figure 3.1-1**).

3.1.2 Analytical Results

3.1.2.1 Soil Results

Three surface and six subsurface soil samples (including one field duplicate) were collected from borings MW01001, SB01002, and SB01003 between 16 and 26 October 2017. PFAS results are provided in **Table 3.1-1**. PFOS, PFOA, and PFBS results are illustrated on **Figure 3.1-2** and summarized below.

MW01001:

- PFOS was detected above the calculated RSL in surface soil (0 to 1 ft bgs) at a concentration of 4.87 mg/kg and was detected below the calculated RSL in subsurface soils at estimated concentrations of 0.0582 mg/kg (29 to 30 ft bgs) and 0.00321 mg/kg (field duplicate, 350 to 351 ft bgs).
- PFOA was detected above the calculated RSL in surface soil (0 to 1 ft bgs) at a concentration of 2.26 mg/kg and was not detected in subsurface soils (29 to 30, 170 to 171, and 350 to 351 ft bgs).
- PFBS was detected below the RSL in surface soil (0 to 1 ft bgs) at a concentration of 0.921 mg/kg and was not detected in subsurface soils (29 to 30, 170 to 171, and 350 to 351 ft bgs).

SB01002:

- PFOS was detected above the calculated RSL in surface soil at a concentration of 1.86 mg/kg (0 to 1 ft bgs) and was detected below the calculated RSL at a concentration of 0.0127 mg/kg in subsurface soil (29 to 30 ft bgs).
- PFOA was detected above the calculated RSL in surface soil at a concentration of 1.80 mg/kg (0 to 1 ft bgs) and was detected below the calculated RSL at a concentration of 0.0208 mg/kg in subsurface soil (29 to 30 ft bgs).
- PFBS was detected below the RSL in surface and subsurface soils at a concentration of 0.858 mg/kg (0 to 1 ft bgs) and an estimated concentration of 0.00786 mg/kg (29 to 30 ft bgs).

SB01003:

- PFOS was detected above the calculated RSL in surface soil at a concentration of 0.865 mg/kg (0 to 1 ft bgs) and below the calculated RSL at an estimated concentration of 0.00169 mg/kg in subsurface soil (29 to 30 ft bgs).
- PFOA was detected above the calculated RSL in surface soil at a concentration of 0.601 mg/kg (0 to 1 feet bgs) and below the calculated RSL at an estimated concentration of 0.00183 mg/kg in subsurface soil (29 to 30 ft bgs).
- PFBS was not detected in surface or subsurface soil.

Physiochemical properties analysis of composite samples indicated TOC concentrations of 4,090 mg/kg (0 to 1 ft bgs) and 171 mg/kg (350 to 351 ft bgs) and pH concentrations of 7.49 Standard Unit (S.U.) (0 to 1 ft bgs) and 8.64 S.U. (350 to 351 ft bgs) (**Table 3.1-2**). Particle size analysis of the composite sample collected from the 0 to 1 ft bgs sample was 42.4% fines (silt and clay), 57.4% sand (fine to coarse), and 0.2% gravel (fine), and analysis of the subsurface sample indicated 59.5% fines (silt and clay), 63.5% sand (fine to coarse), and 0.9% gravel (fine). The material descriptions for the 0 to 1 ft bgs sample was a reddish brown, silty sand, while the subsurface sample was described as reddish brown silt with sand.

3.1.2.2 Groundwater Results

One groundwater sample was collected from new monitoring well MW01001. PFAS results are provided in **Table 3.1-3**. PFOS, PFOA, and PFBS results are illustrated on **Figure 3.1-3** and summarized below.

MW01001:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

3.1.2.3 Sediment Results

One sediment sample was collected for PFAS analysis, with the results provided in **Table 3.1-4**. PFOS, PFOA, and PFBS results are illustrated on **Figure 3.1-4** and are summarized below.

SD01001:

- PFOS was detected above the calculated RSL at a concentration of 0.332 mg/kg.
- PFOA was detected below the calculated RSL at a concentration of 0.00298 mg/kg.
- PFBS was detected below the RSL at an estimated concentration of 0.000811 mg/kg.

3.1.3 Conclusions

PFOS and PFOA were detected in soil at AFFF Release Area 1 at concentrations above the calculated RSL. The highest concentrations were identified in surface soils at MW01001 and SB01002 located inside the boundary of the West Fire Ring and the South Fire Ring where AFFF was released. PFOS, PFOA, and PFBS were not detected in groundwater. PFOS was detected above the calculated RSL in the sediment.

3.2 AFFF RELEASE AREA 2: AIRFIELD CRASH SITES

There are four individual crash events located adjacent to the active runway where unknown amounts of AFFF was used to extinguish fires. Plane crash 1 is located on the north end of the runway where an F-16 crash landed in 1992. Plane Crash 2 is located adjacent to the runway when a F-86 crash landed. Plane crash 3 is located adjacent to the runway when an airplane crash landed. Plane crash 4 is located south of the runway after a Cessna airplane crashed short of the runway.

3.2.1 Sample Location and Methodologies

3.2.1.1 Soil Samples

Four soil borings, MW02001, SB02002, SB02003, and SB02004 were advanced along the runway from 19 to 21 December 2017 (**Figure 3.2-1**). MW02001 was advanced below the water table within the boundary of Plane Crash 4 at the southern, upgradient end of the runway to a depth 308 ft bgs. SB02002, SB02003, and SB02004 were sampled via hand auger methods to depths of 1 ft bgs. Surface soil samples were collected from 0 to 1 ft bgs at all four boring locations for PFAS analysis and composited for TOC, pH, and particle size analysis. Subsurface soil samples at MW02001 were collected from 29 to 30 for PFAS analysis and from 170 to 171 ft bgs for PFAS analysis and composited for TOC, pH, and particle size analysis. A soil sample was not collected from just above the water table because the depth to groundwater encountered during drilling, approximately 287 ft bgs, was shallower than anticipated.

3.2.1.2 Groundwater Samples

A permanent monitoring well was installed in the soil boring for MW02001 between 21 and 23 December 2017 to assess PFAS concentrations at airfield Crash Site 4 and upgradient of the active runway (**Figure 3.2-1**). The monitoring well was developed on 4 January 2018 and sampled on 5 January 2018. Groundwater samples were also collected from existing airfield monitoring wells: ST-35-MW-40, located northeast of Plane Crash 2; ST-35-MW-42 and ST-35-MW-43, located on the north end of the airfield downgradient from the Plane Crash locations; and ST-35-MW-44, located near the center of the east side of the runway and downgradient of Plan Crash locations 2, 3, and 4. Groundwater samples were not collected from existing monitoring well ST-35-MW-35 because it had been abandoned and replaced with ST-35-MW-44, or from existing monitoring wells ST-35-MW-28 or ST-35-32 because the existing pumps were not functional.

3.2.2 Analytical Results

3.2.2.1 Soil Results

Five surface soil samples (including one field duplicate) were collected from soil borings MW02001, SB02002, SB02003, and SB02004 and two subsurface soil samples were collected from the soil boring for MW02001 between 19 and 21 December 2017. PFAS results are provided in **Table 3.1-1**. PFOS, PFOA and PFBS results are illustrated on **Figure 3.2-2** and are summarized below.

MW02001:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

SB02002:

- PFOS was detected below the calculated RSL at an estimated concentration of 0.00135 mg/kg (0 to 1 ft bgs).
- PFOA was not detected.
- PEBS was not detected.

SB02003:

- PFOS was detected below the calculated RSL at an estimated concentration of 0.00112 mg/kg (0 to 1 ft bgs).
- PFOA was not detected.
- PFBS was not detected.

SB02004:

 PFOS was detected below the calculated RSL at an estimated concentration of 0.0007 mg/kg (0 to 1 ft bgs).

- PFOA was not detected.
- PFBS was not detected.

Physiochemical properties analysis of composite samples indicated a TOC concentration of 3,430 mg/kg, and a pH concentration of 8.51 S.U. (**Table 3.1-2**). The particle size analytical results for the 0 to 1 ft bgs composite sample was 30% fines (silt and clay), 64.1% sand (fine to coarse), and 5.9% gravel (fine). The material description for the sample was a red brown, silty sand.

3.2.2.2 Groundwater Results

Six groundwater samples (including one field duplicate) were collected from MW02001, ST-35-MW-40, ST-35-MW-42, ST-35-MW-43, and ST-35-MW-44 on 5 January 2018. PFAS results are provided in **Table 3.1-3**. PFOS, PFOA, and PFBS results are illustrated on **Figure 3.2-3** and are summarized below.

MW02001:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

ST-35-MW-40:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

ST-35-MW-42:

- PFOS was not detected.
- PFOA was detected below the USEPA HA value at a concentration of 0.0394 μg/L.
- PFOS+PFOA was calculated below the USEPA HA value at a concentration of 0.0394 µg/L.
- PFBS was detected below the USEPA Tap Water RSL at a concentration of 0.0198 µg/L.

ST-35-MW-43:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

ST-35-MW-44:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

3.2.3 Conclusions

PFOS was detected in surface soils at AFFF Release Area 2 at concentrations below the calculated RSL at shallow borings, SB02002, SB02003, and SB02004. PFOA and PFOS+PFOA detections in groundwater were below the USEPA HA value in existing well ST-35-MW-42. PFBS was detected below the USEPA Tap Water RSL in ST-35-MW-42.

3.3 AFFF RELEASE AREA 3: STORMWATER OUTFALL CANAL

The surface drainage over most of the installation is routed to the unlined Stormwater Outfall Canal located at the northern, downgradient end of the installation, then to the partially lined Tucson Diversion Channel which is classified as a tributary of the Santa Cruz River. Overland sheet flow and a system of subsurface storm drainage pipes route runoff to the Stormwater Outfall Canal. Potential runoff containing AFFF from release areas is routed into the Stormwater Outfall Canal.

3.3.1 Sample Location and Methodologies

3.3.1.1 Soil Samples

One soil boring, MW03001, was advanced upgradient of the Stormwater Outfall Canal between 13 and 16 October 2017 (**Figure 3.3-1**). Surface soil samples were collected from 0 to 1 ft bgs for PFAS analysis and composited for TOC, pH, and particle size analysis. Subsurface soil samples were collected for PFAS analysis from 300 to 301 ft bgs and composited for TOC, pH, and particle size analysis. Groundwater was encountered at 302 ft bgs during boring advancement.

3.3.1.2 Groundwater Samples

One permanent monitoring well was installed in the soil boring for MW03001 between 16 and 18 October 2017 to assess PFAS concentrations upgradient of the Stormwater Outfall Canal and downgradient of the active runway (**Figure 3.3-1**). The monitoring well was developed on 3 January 2018 and sampled on 4 January 2018.

3.3.1.3 Sediment Samples

Four sediment locations (SD03001, SD03002, SD03003, and SD03004) were sampled between 26 October 2017 and 5 January 2018 from the North Ramp Drainage Outfall, Former Fire Station No. 1 Drainage Outfall, and along the Stormwater Outfall Canal to determine the presence of residual PFAS (**Figure 3.3-1**).

3.3.2 Analytical Results

3.3.2.1 Soil Results

One surface soil and three subsurface soil samples were collected from the soil boring for MW03001 between 13 and 15 October 2017. PFAS results are provided in **Table 3.1-1**. PFOS, PFOA, and PFBS results are illustrated on **Figure 3.3-2** and are summarized below.

MW03001:

- PFOS was detected below the calculated RSL in surface soil at a concentration of 0.00172 mg/kg (0 to 1 ft bgs) and was not detected in subsurface soils.
- PFOA was not detected.
- PFBS was not detected.

Physiochemical properties analysis of composite samples indicated TOC concentrations of 67.5 mg/kg (300 to 301 ft bgs) and 5,570 mg/kg (0 to 1 ft bgs) and pH concentrations of 8.35 S.U. (0 to 1 ft bgs) and 8.9 S.U. (300 to 301 ft bgs) (**Table 3.1-2**). Particle size analysis of the composite sample collected from 0 to 1 ft bgs sample indicated 32% fines (silt and clay), 65.5% sand (fine to coarse), and 2.5% gravel (fine), and analysis of the sample collected from the subsurface indicated 10.3% fines (silt and clay), 84.1% sand (fine to coarse), and 5.6% gravel (fine). The material descriptions for the surface sample was a reddish brown, silty sand, while the subsurface sample was described as reddish brown, poorly graded sand with silt.

3.3.2.2 Groundwater Results

One groundwater sample was collected from MW03001 on 4 January 2018. PFAS results are provided in **Table 3.1-3**. PFOS, PFOA, and PFBS results are illustrated on **Figure 3.3-3** and are summarized below.

MW03001:

- PFOS was not detected.
- PFOA was not detected.
- PFOS+PFOA was not detected.
- PFBS was not detected.

3.3.2.3 Sediment Results

Five sediment samples (including one field duplicate) were collected for PFAS analysis, with the results provided in **Table 3.1-4**. PFOS, PFOA, and PFBS results are illustrated on **Figure 3.3-4** and are summarized below.

SD03001:

- PFOS was detected below the calculated RSL at a maximum estimated concentration of 0.00151 mg/kg (field duplicate).
- PFOA was not detected.
- PFBS was not detected.

SD03002:

- PFOS was detected below the calculated RSL at an estimated concentration of 0.00107 mg/kg.
- PFOA was not detected.
- PFBS was not detected.

SD03003:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

SD03004:

- PFOS was not detected.
- PFOA was not detected.
- PFBS was not detected.

3.3.3 Conclusions

PFOS was detected in surface soils at AFFF Release Area 3 at concentrations below the calculated RSL. PFAS were not detected in groundwater. PFOS was detected at concentrations below the calculated RSL in sediment. Surface water samples were not collected because water was not present due to arid conditions.

4.0 MIGRATION/EXPOSURE PATHWAYS AND TARGETS

An updated basewide conceptual site model table is provided as **Table 4.0-1**. The table provides an overview of the facility, physical, release, land use, exposure, and ecological profiles at Davis-Monthan AFB. The table has been updated to include information collected during this SI. A more detailed description of source area conditions and exposure pathways is described in the following sections.

4.1 SOIL EXPOSURE PATHWAY

4.1.1 Local Geologic Setting

The principle soil types at DMAFB consist of Tertiary to Quaternary age volcanic deposits consisting of gravel, sand, silt, and clay with minor amounts of gypsiferous and anhydrous sediments. DMAFB is in the Tucson Basin which is 1,000-square mile area in the upper Santa Cruz River drainage basin (HGL, 2015). The block-faulted mountains surrounding the Tucson Basin are composed of Precambrian through Tertiary age granitic, metamorphic, volcanic, and consolidated sedimentary rock. The basin-fill sediments form the regional aquifer have been divided into the upper and lower basin-fill units and these have been subdivided into stratigraphic units. In ascending order, the lower basin-fill unit is comprised of the Pantano formation and the lower and middle Tinaja Beds. The upper basin fill unit is comprised of the upper Tinaja Beds, the Fort Lowell Formation, and the surficial alluvial deposits, which include stream channel deposits (HGL, 2015). A Basewide geologic cross section developed from the SI well installation activities is provided on **Figure 3.0-1**.

4.1.2 Soil Exposure Pathways and Targets

PFOS and PFOA were detected in surface soil at concentrations exceeding calculated RSLs at AFFF Release Area 1. AFFF Release Areas 1 is an open, unpaved area with exposed surface soil.

Surface soil at AFFF Release Area 1 is potentially accessible by USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers. Access to source area soil is not expected to change in the future. Potential exposure routes for soil include inhalation of impacted surface soil dust particles, and ingestion of and dermal contact with impacted soil.

4.1.3 Soil Exposure Conclusions

Based on the SI results described above, potentially complete soil exposure pathway exists at AFFF Release Area 1. Potential human exposure receptors from PFOS and PFOA in surface soil include USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers. Further investigation and evaluation of specific exposure conditions is required to determine if exposure pathways are complete.

4.2 SEDIMENT EXPOSURE PATHWAY

4.2.1 Sediment Exposure Pathways and Targets

PFOS was detected in sediment at AFFF Release Areas 1 at concentrations exceeding the calculated RSL. Sediment at Davis-Monthan AFB is potentially accessible by USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers. Potential exposure routes for sediment include dermal contact with submerged or exposed sediment during work activities such as maintenance of drainage features and outfalls that contain PFOS-impacted sediment.

4.2.2 Sediment Exposure Conclusions

PFOS was detected in sediments collected from AFFF Release Area 1 at concentrations exceeding the calculated RSL. Potential exposure receptors include USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers that may come into contact with sediment at these AFFF Release Areas. Further investigation and evaluation of specific exposure conditions is recommended to determine if exposure pathways are complete.

4.3 GROUNDWATER MIGRATION PATHWAY

4.3.1 Local Hydrogeologic Setting

The units that form the aquifer are loosely consolidated to strongly cemented and have an estimated thickness of more than 5,000 ft. The Pantano formation is the lowest unit into which wells are screened and the top of the formation occurs at approximately 1,300 ft amsl. The Tinaja beds overlies the Pantano formation and the top of this formation occurs at approximately 2,400 ft amsl. Most of the wells at Davis-Monthan AFB are completed into the Tinaja Beds which have been subdivided into the upper, middle, and lower units (HGL, 2015). Overlaying the Tinaja beds is the Fort Lowell Formation which occurs from approximately 2,200 ft to 2,500 ft amsl. The Fort Lowell formation is overlain by surficial deposits emplaced by the present drainage system. The formations which comprise the aquifer of the Tucson Basin generally act as a single hydrologic unit.

The porosity of the Fort Lowell Formation ranges from 26 to 34 percent, with an average of 30 percent. Average specific yield is approximately 15 percent. Hydraulic conductivity, estimated from pumping tests at Tucson Water wells, ranges from 200 to 500 gallons per day per square foot (gpd/ft2). The ratio of vertical to horizontal hydraulic conductivity computed from aquifer tests for units similar to the Fort Lowell Formation commonly ranges from 1:10 to 1:100, indicating that vertical hydraulic conductivity of the Fort Lowell Formation may be in the range of 1.2 to 20 gpd/ft². The porosity of the upper Tinaja beds ranges from 24 to 35 percent. Horizontal and vertical hydraulic conductivities of the upper Tinaja beds were estimated ranging from 110 to 480 gpd/ft² for horizontal hydraulic conductivity with an average of approximately 300 gpd/ft², and ranging from 2 to 17 gpd/ft² for vertical conductivity with an average of approximately 7 gpd/ft². The ratio of vertical to horizontal hydraulic conductivity was approximately 1:40 (ADEQ and URS, 2015).

The Tucson Basin is drained by the Santa Cruz River, which is located approximately 4.5 miles west of the base. Major tributaries of the Santa Cruz River near DMAFB include the:

- Rillito Creek (4.5 miles north);
- Julian Wash (1 mile southwest); and,
- Pantano Wash (0.5 miles northeast).

The Pantano wash flows northwest, discharging into the Rillito Creek. The Rillito Creek flows west and the Julian wash flows northwest, with both discharging directly into the Santa Cruz River (HGL, 2015). Surface drainage from most of the installation is collected by a system of swales, dry washes, and subsurface storm drainage pipes that collect runoff along the flight line and main runway. These drainage paths route the runoff to the Stormwater Outfall Canal and then to the Tucson Diversion Channel, which is classified as a tributary of the Santa Cruz River. Low precipitation (10 inches per year) and high evaporation (65 inches per year) rates leave surface streams and rivers typically dry; only during and immediately following storm events will they convey water. Groundwater is recharged at the basin periphery and by streambed infiltration along the Santa Cruz River and its tributaries.

Although the streams in the Tucson basin are dry for long periods each year, they transport volumes of water that are significant in terms of water use, and large quantities of streamflow infiltrate the streambed alluvium. Much of the water that infiltrates the streambed alluvium is recharged to the underlying aquifer. Approximately a third of the floodwater that infiltrates the bed of the Santa Cruz River is promptly added to ground-water storage but that the remainder may take more than 6 months to reach the water table. The amount of recharge along the major streams probably is equivalent to at least 90 percent of the amount of infiltrated water, and in places where the water level is deep enough not to interfere with the infiltration rate and where the rate is great, recharge probably approaches 100 percent of the infiltration. The mean annual infiltration for 1936-1963 along the Santa Cruz River, Canada del Oro, and Pantano Wash ranged from about 80 to 480 acre-feet per mile. The mean annual infiltration along Canada del Oro, Rillito Creek, Tanque Verde Creek and parts of Sabino Creek and Agua Caliente Wash, and Rincon Creek ranged from 295 to 820 acre-feet per mile (Davidson, 1973).

More than one-third of the annual precipitation occurs during the months of July and August when moisture-bearing winds move into Arizona from the Gulf of Mexico. Summer rains occur in the form of thunderstorms, which can produce short, intense downpours, strong winds, lightning strikes, and flash floods. Tropical systems from the eastern Pacific Ocean can affect the area in the summer and fall months. Several large-scale flooding events have been associated with these systems including historic events in 1977 and 1983. During storm runoff recharge events, groundwater mounding occurs at the water table along stream channels and the direction of groundwater flow may temporarily shift toward a direction nearly perpendicular to the stream channel in localized areas. Recharge occurring along stream channels in response to storm runoff events has been shown to be highly variable (ADEQ and URS, 2015).

4.3.2 Groundwater Exposure Pathways and Targets

PFAS, once in groundwater, are highly mobile and will migrate near the same velocity as groundwater due to their high solubility and low partition coefficient value. PFAS are chemically and biologically stable in

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to the public.

the environment and resist typical environmental degradation processes. As a result, these chemicals are extremely persistent in the environment, with a half-life greater than 41 years for PFOS and greater than 92 years for PFOA (USEPA, 2014). PFBS are generally less toxic and less bioaccumulative in wildlife and humans (USEPA, 2017b). PFOA was detected in groundwater at concentrations below the USEPA HAs for PFOS, PFOA, and/or the sum of PFOS/PFOA in ST-35-MW-42 at AFFF Release Area 2.

New and existing groundwater monitoring wells at DMAFB are screened in the Fort Lowell and Tinaja Bed formations. Groundwater flow direction at DMAFB is generally toward the north and northwest as depicted on **Figure 3.0-2**, with the depth to groundwater during this SI ranging from 282 to 350 feet bgs. MW03001 (AFFF Release Area 3) is screened within the Fort Lowell formation at a depth interval of 301 to 321 feet below ground surface (bgs). ST-35-MW-42 (AFFF Release Area 2) is screened from 318 to 368 feet bgs within the Tinaja Bed formation. MW03001 had no detections of PFOS, PFOA, or PFBS above detectable levels while ST-35-MW-42, the deeper well, had detections of PFOA and PFBS. No additional existing monitoring wells screened at deeper intervals than wells sampled during the SI are available within the base boundary.

Amec Foster Wheeler performed a desktop survey of potential private and public water supply wells within a one-mile and four-mile distance of the installation boundary to identify potential receptor pathways and down-stream and/or downgradient receptors. The desktop survey included a review of the Arizona Department of Water Resources (ADWR) Wells 55 Registry (ADWR 2018). A total of 2,256 wells were identified within a four-mile distance of the installation (Figure 4.3-1), 277 of which are potential drinking water wells located (b) (6) of DMAFB (Figure 4.3-2). Of the 277 downgradient wells, a total of 112 wells were identified as (b) (6) and 115 were identified as municipal use wells. The remaining 50 wells were identified as other-production, reserved or use was not identified.

The City of Tucson has five production wells located within approximately a one-mile radius of ST-35-MW-42, north of the Stormwater Outfall Canal. The number and location of wells, the rates for individual wells, and the duration and schedule of pumping have changed over time. Historically, pumping regimens and recharge events would have combined to influence horizontal and vertical groundwater flow direction and gradient. Two of these supply wells, C-007A and C-014B, were sampled by the City of Tucson for PFOS and PFOA in 2017. Analytical results indicated concentrations of PFOS+PFOA above the USEPA HA value. C-007A is located downgradient of the Stormwater Outfall Canal and is screened from 266 to 380 feet with a pump intake depth of 441 feet and total depth of approximately 641 feet. C-014B is also located downgradient of the Stormwater Outfall Canal and is screened from approximately 260 to 780 feet with an approximate pump intake depth of 445 feet. Analytical results are listed below with corresponding date and PFOS+PFOA concentrations:

C-007A

- 0.94 μg/L (5/8/2017)
- 3.22 μg/L (10/12/2017)

- C-014B
 - o 0.079 μg/L (11/30/2016)
 - 0.133 μg/L (10/12/2017)

The Stormwater Outfall Canal within the northern boundary of DMAFB is unlined within the installation boundary, where stormwater can flow into the canal and surrounding floodplain and infiltrate the streambed alluvium, recharging the underlying aquifer. Surface flow is extremely variable, tending toward seasonal variations. Summer flows have greater velocity and transport larger quantities of suspended sediment. Winter flows have larger flow volumes and longer duration, and may extend into the Canal's floodplain (Innovative Technical Solutions, Inc. [ITS], 2012). Sediment and surface soil analytical results indicate that the Canal collects stormwater from across the installation containing PFAS. PFAS may also have reached groundwater as a result of large infiltration events such as heavy rainfalls or floods. In these cases, water infiltrating from the surface may transfer contaminants present in the soil to groundwater. Large infiltration events have occurred periodically at the installation. Additionally, heavy rainfall or flood events have been shown to cause a temporary rise in water levels. Rising water may submerge contaminated soil and further increase the mass transfer of contaminants into the groundwater. As described above, the mass transfer of contaminants to groundwater may have periodically increased following large infiltration events. Based on the analytical results and our understanding of the conceptual site model, the Stormwater Outfall Canal is a potential source area for PFAS impacts to groundwater downgradient of MW-42.

4.3.3 Groundwater Migration Pathway Conclusions

PFOA in groundwater did not exceed the USEPA HA value of $0.07~\mu g/L$ for PFOS, PFOA, and/or the sum of PFOS/PFOA, across the installation. Based on the current understanding of the conceptual site model, the higher concentrations of PFOS/PFOA detected in the Tucson Water supply wells may be attributable to the upgradient proximity of the Stormwater Outfall Canal and vertical migration within the aquifer in response to historical pumping regimes.

While the results of the SI do not necessarily indicate any migration of contaminants off base, based on the CSM and the levels of PFOS/PFOA in the Tucson Water municipal supply wells, additional investigation in the area of the Stormwater Outfall Canal is warranted. The Installation and sampling of water table and deeper aquifer monitoring wells located downgradient of the Stormwater Outfall Canal at the northern base boundary is recommended to determine if PFAS in groundwater is migrating downgradient of DMAFB and towards Tucson Water Wells C-007A and C-014B.

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5.0 SUMMARY AND CONCLUSIONS

As stated in the introduction, the objectives of this study were to:

- Determine if PFOS, PFOA, or PFBS are present in soil, groundwater and/or sediment;
- Determine if PFOS and PFOA concentrations in soil exceed the calculated RSL of 0.126 mg/kg, and
 if PFBS concentrations in soil exceed the USEPA RSL of 130 mg/kg;
- Determine if PFOS, PFOA, or the sum of PFOS and PFOA concentrations in groundwater exceed the USEPA HA value of 0.07 μ g /L, and if PFBS concentrations in groundwater exceed the USEPA Tap Water RSL of 40 μ g/L;
- Determine if concentrations of PFOS or PFOA in sediment exceed the calculated RSL of 0.126 mg/kg, and if PFBS concentrations in sediment exceed the USEPA RSL of 130 mg/kg; and,
- Identify potential receptor pathways with immediate impacts to human health (immediate impact to human health is considered consumption of drinking water with PFOS/PFOA above the HA, or PFBS above the calculated RSL).

Section 3 of this SI detailed the analytical results for PFAS at each AFFF release area. A summary table (**Table 5.0-1**) is also provided below which lists specific exceedances by area and media, fulfilling the objectives of the SI.

Table 5.0-1. Summary of Analytical Results and Screening Level Exceedances.

AFFF Release Area	Parameter	Maximum Detected Concentration	Screening Value	Units	Number of Samples*/ Number of Exceedances	Exceeds Screening Level	Potentially Complete DW Exposure Pathway	Recommendations
	Surface Soil (0 to 1 feet)							
	PFOS	4.87	0.126	mg/kg	3/3	Yes		
	PFOA	2.26	0.126	mg/kg	3/3	Yes		
	PFBS	0.921	130	mg/kg	3/0	No		
	Subsurface Soil (29 to 351 feet)							
	PFOS	0.0582 J	0.126	mg/kg	5/0	No		Advance Area to
AFFF	PFOA	0.0208	0.126	mg/kg	5/0	No		
Release Area 1: FT- 03 (Former Fire Training Area)	PFBS	0.00786 J	130	mg/kg	5/0	No]	
	Sediment							RI
	PFOS	0.332	0.126	mg/kg	1/1	Yes		
	PFOA	0.00298	0.126	mg/kg	1/0	No		
	PFBS	0.000811 J	130	mg/kg	1/0	No		
	Groundwater							
	PFOS	ND	0.07	μg/L	1/0	No		
	PFOA	ND	0.07	μg/L	1/0	No		
	PFOS+PFOA	ND	0.07	μg/L	1/0	No		
	PFBS	ND	40	μg/L	1/0	No		
	Surface Soil (0 to 1 feet)							
	PFOS	0.00135 J	0.126	mg/kg	4/0	No		
	PFOA	ND	0.126	mg/kg	4/0	No		
	PFBS	ND	130	mg/kg	4/0	No		
AFFF	Subsurface Soil (29 to 171 feet)							
Release Area 2: Airfield Crash Sites	PFOS	ND	0.126	mg/kg	2/0	No	No	Advance Area to RI
	PFOA	ND	0.126	mg/kg	2/0	No		
	PFBS	ND	130	mg/kg	2/0	No		
	Groundwater							
	PFOS	ND	0.07	μg/L	5/0	No		
	PFOA	0.0394	0.07	μg/L	5/0	No		
	PFOS+PFOA	0.0394	0.07	μg/L	5/0	No		
	PFBS	0.0198	40	μg/L	5/0	No		

Table 5.0-1. Summary of Analytical Results and Screening Level Exceedances (cont)

AFFF Release Area	Parameter	Maximum Detected Concentration	Screening Value	Units	Number of Samples*/ Number of Exceedances	Exceeds Screening Level	Potentially Complete DW Exposure Pathway	Recommendations
AFFF Release Area 3: Stormwater Outfall Canal	Surface Soil (0	to 1 feet)						
	PFOS	0.00172 J	0.126	mg/kg	1/0	No		
	PFOA	ND	0.126	mg/kg	1/0	No		
	PFBS	ND	130	mg/kg	1/0	No		
	Subsurface So	oil (29 to 351 feet)						
	PFOS	ND	0.126	mg/kg	3/0	No		Initiate
	PFOA	ND	0.126	mg/kg	3/0	No		
	PFBS	ND	130	mg/kg	3/0	No		
	Sediment							Expanded SI Advance Area to
	PFOS	0.00151 J	0.126	mg/kg	4/0	No		RI
	PFOA	ND	0.126	mg/kg	4/0	No		
	PFBS	ND	130	Mg/kg	4/0	No		
	Groundwater							
	PFOS	ND	0.07	μg/L	1/0	No		
	PFOA	ND	0.07	μg/L	1/0	No		
	PFOS+PFOA	ND	0.07	μg/L	1/0	No		
	PFBS	ND	40	μg/L	1/0	No		

Notes:

AFFF - aqueous film forming foam

J – The analyte was positively identified, and the associated numerical value is the approximate concentration of the analyte in the sample

μg/L – micrograms per liter

mg/kg - milligrams per kilogram

ND – not detected

RI – Remedial Investigation

SSI –Site Inspection

^{*}normal samples (count does not include QC samples)

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not accessible

to the public.

Potential human health pathways were identified and detailed in Section 4 of this SIR. The potential receptors and targets vary by AFFF release area. Media-specific pathways and receptors are discussed below.

Surface and Subsurface Soil Receptors

Based on the SI results, potentially complete soil exposure pathways exist at AFFF Release Area 1. Potential human exposure receptors from PFOS and PFOA in surface soil include USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers. Further investigation and evaluation of specific exposure conditions is required to determine if exposure pathways are complete.

Sediment Receptors

PFOS was detected in sediments collected from AFFF Release Area 1 at concentrations exceeding the calculated RSL. Potential exposure receptors include USAF personnel, contract personnel, grounds maintenance workers, utility workers, construction workers, visitors, and trespassers that may come into contact with sediment at these AFFF Release Areas. Further investigation and evaluation of specific exposure conditions is required to determine if exposure pathways are complete.

Groundwater Receptors

Administrative PFOA in groundwater did not exceed the USEPA HA value of 0.07 μg/L for PFOS, PFOA, and/or the sum of PFOS/PFOA, across the installation. Based on the current understanding of the conceptual site model, the higher concentrations of PFOS/PFOA detected in the Tucson Water supply wells may be attributable to the upgradient proximity of the Stormwater Outfall Canal and vertical migration within the aquifer in response to historical pumping regimes.

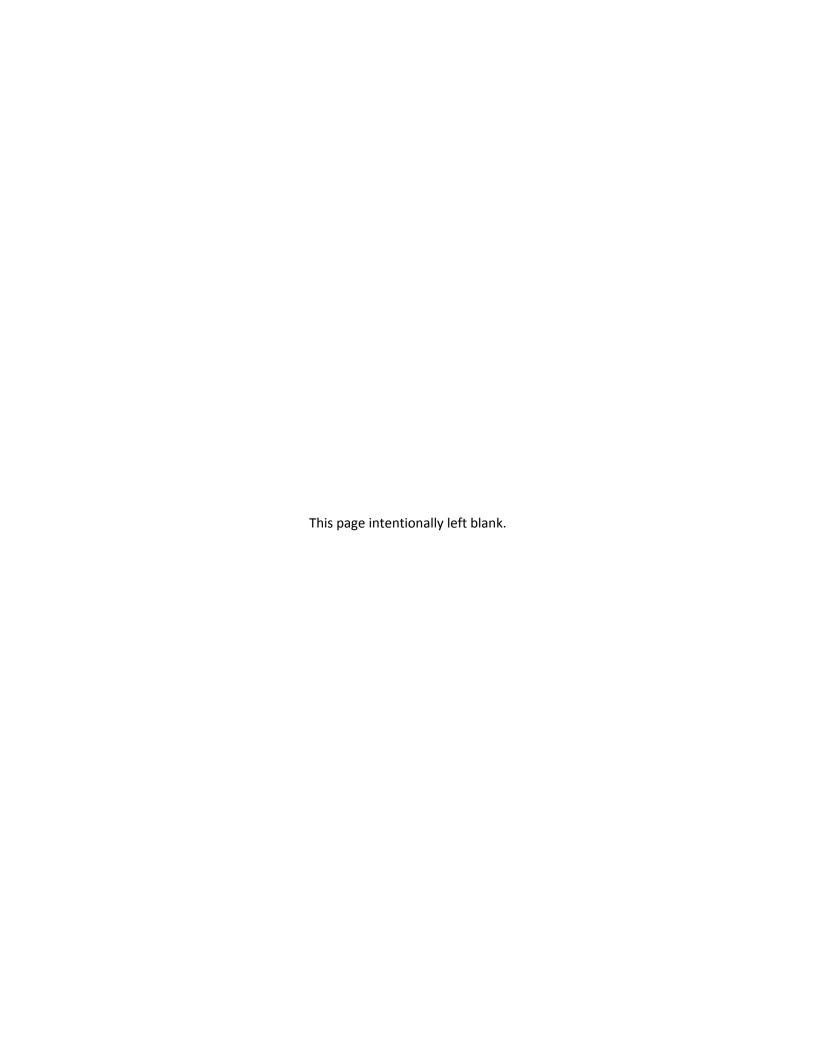
> While the results of the SI do not necessarily indicate any migration of contaminants off base, based on the CSM and the levels of PFOS/PFOA in the Tucson Water municipal supply wells, additional investigation in the area of the Stormwater Outfall Canal is warranted. The installation and sampling of water table and deeper aquifer monitoring wells located downgradient of the Stormwater Outfall Canal at the northern base boundary is recommended to determine if PFAS in groundwater is migrating (6) (6) of DMAFB and to Tucson Water Wells C-007A and C-014B.

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Notes:

Shaded = Result Exceeds Screening Level

\$\rightarrow\$ 2335.58 = January 2018 Groundwater Elevation (ft amsl)

^A = Higher concentration observed in field duplicate sample.

Groundwater elevations in NAVD88 (feet)

J = The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

Q = The analyte is both B qualified because of blank detection and J qualified because of an additional QC issue.

U = The analyte was analyzed for, but was not detected above the reported limit of detection (LOD).

UJ = The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Acronyms:

AFFF = Aqueous Film Forming Foam

ft amsl = feet above mean sea level

ft bgs = feet below ground surface

mg/kg = milligrams per kilogram

ND = Not Detected

PFAS = Per- and Polyfluorinated Alkyl Substances

PFBS = Perfluorobutanesulfonic Acid

PFOA = Perfluorooctanoic Acid

PFOS = Perfluorooctanesulfonic Acid

μg/L = Micrograms per Liter

Air Force Civil Engineer Center

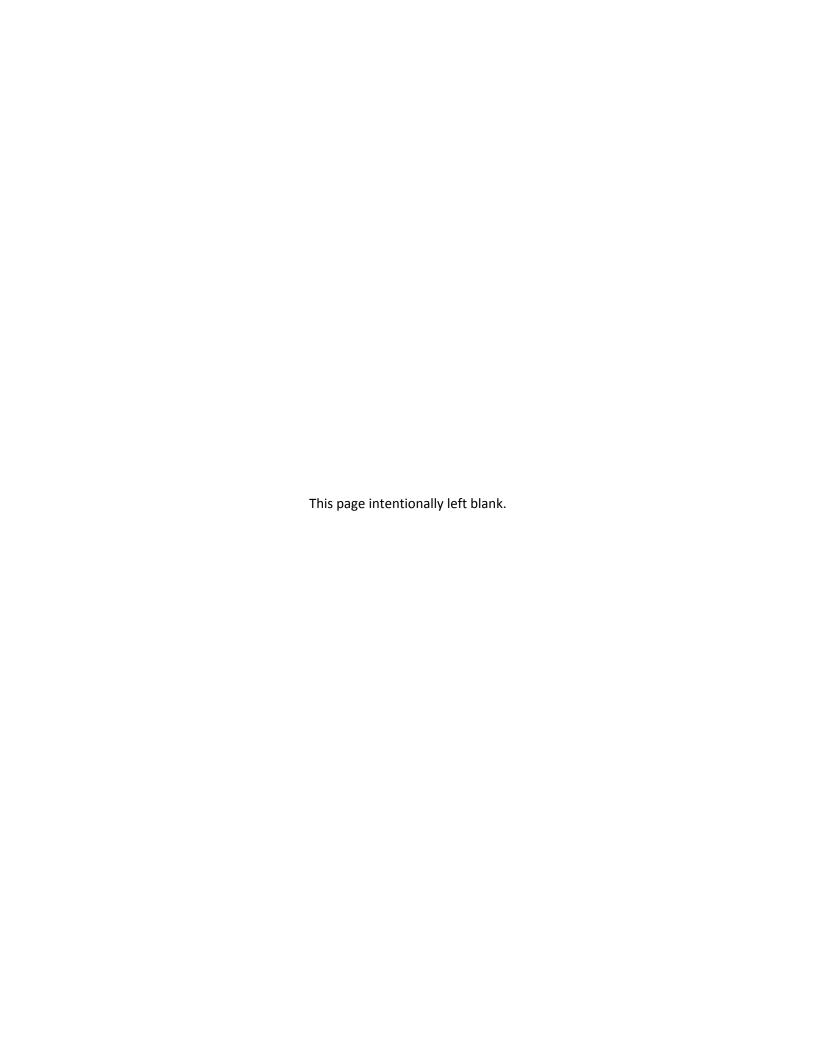
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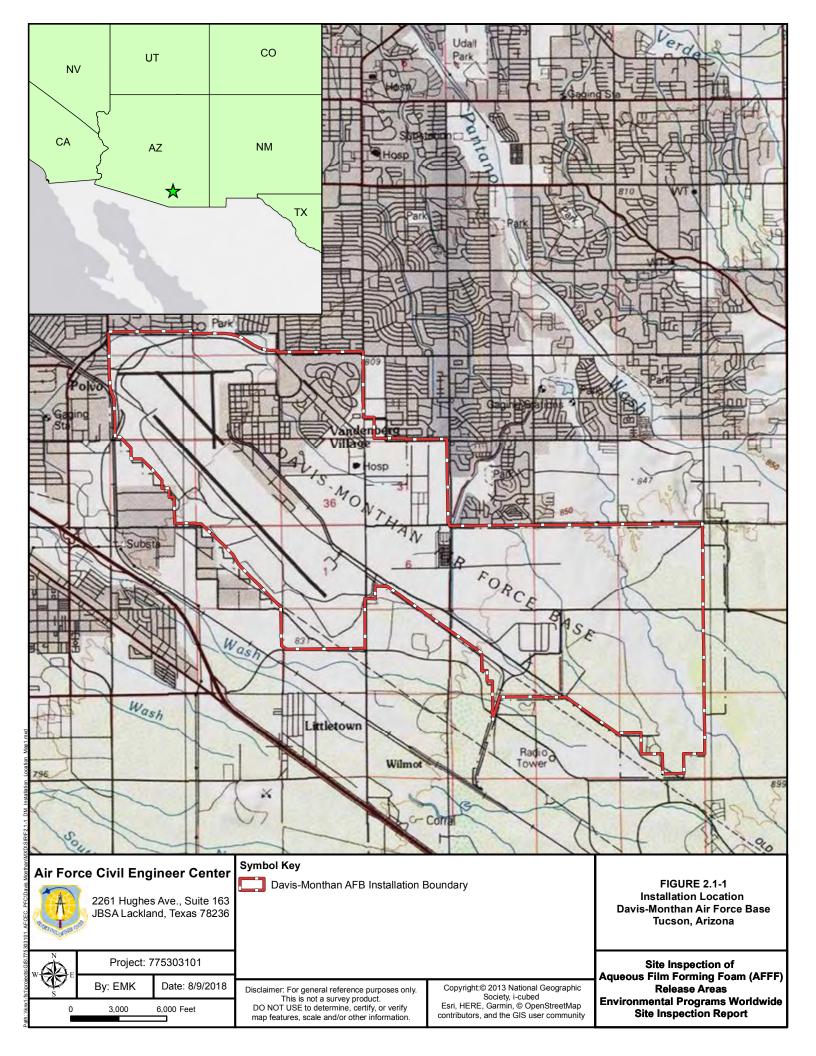
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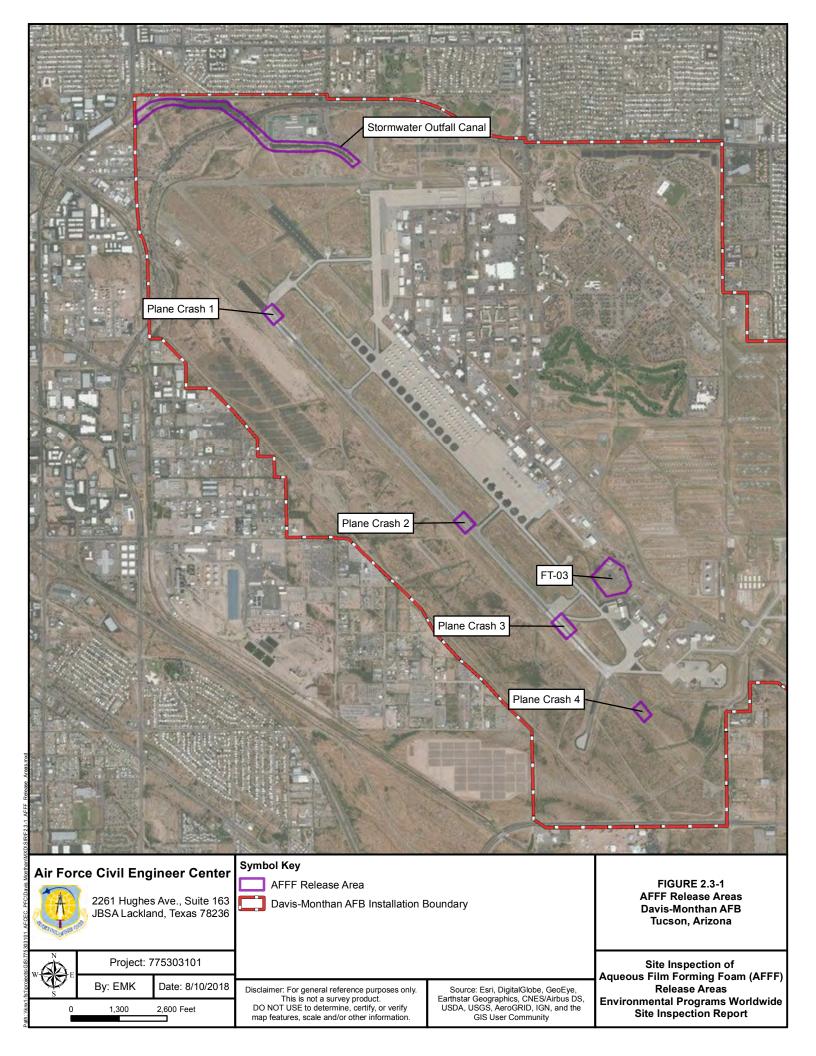
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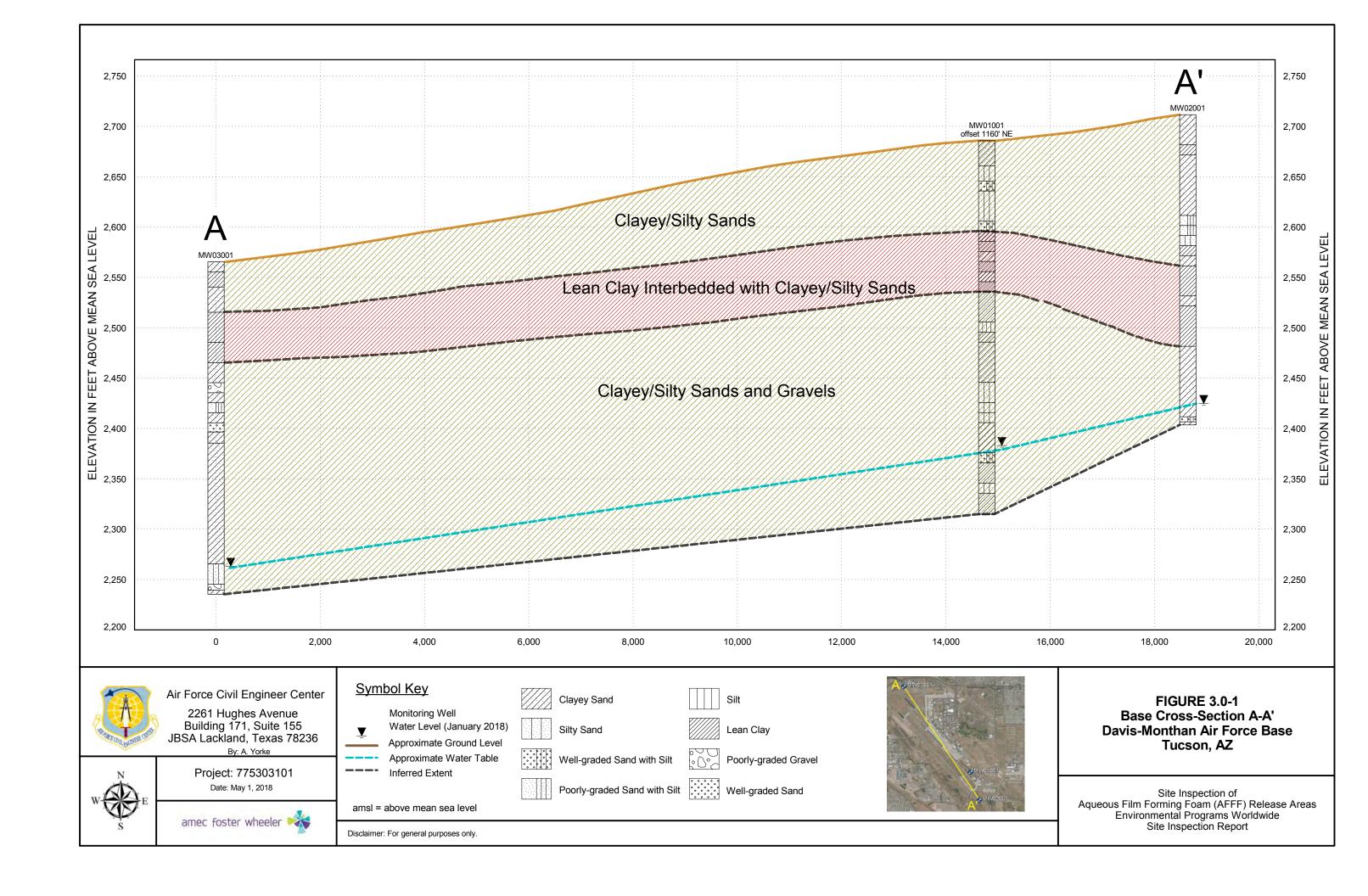
Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide Site Inspection Report

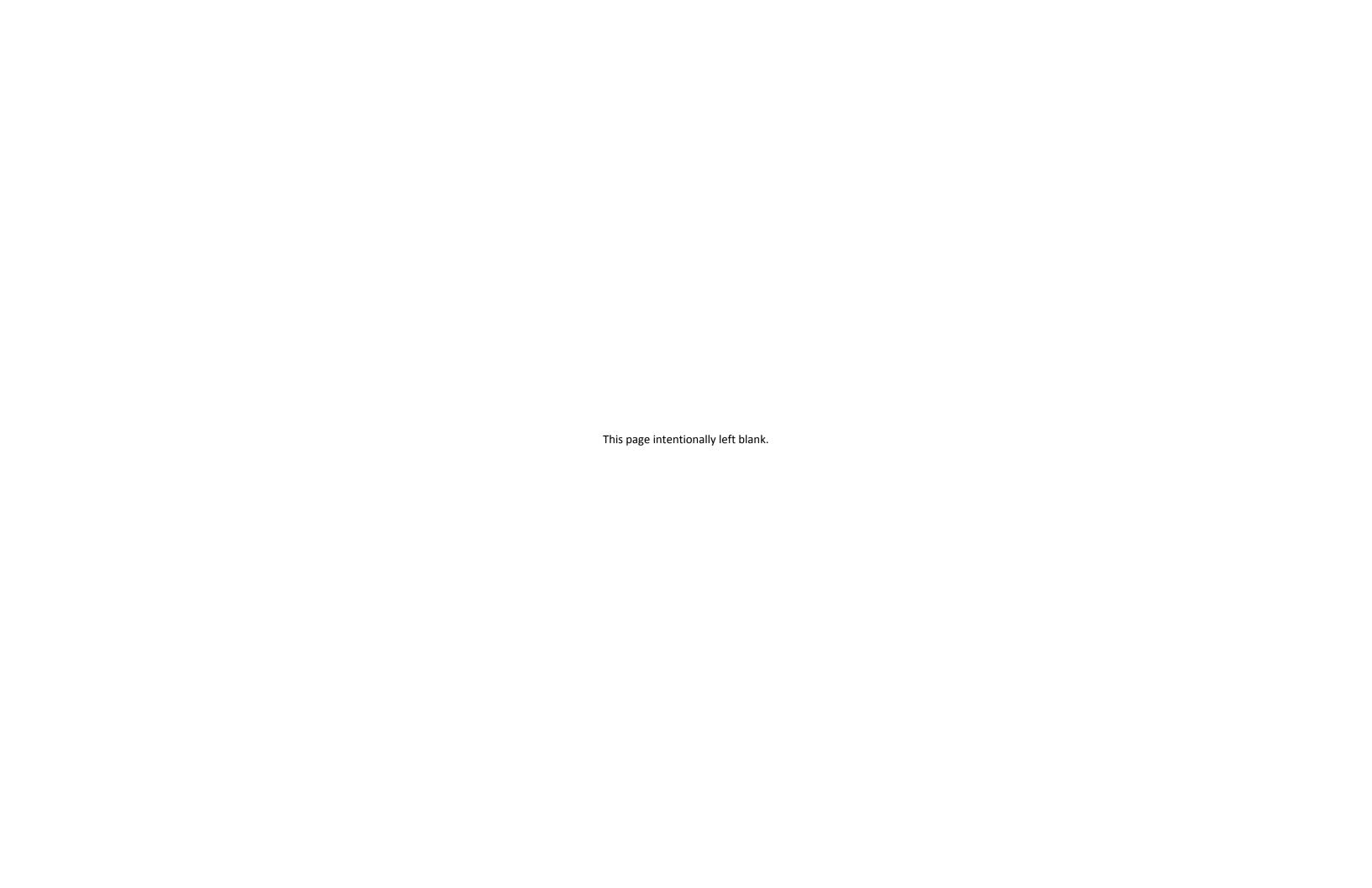
Notes and Acronyms Davis-Monthan Air Force Base Tucson, Arizona

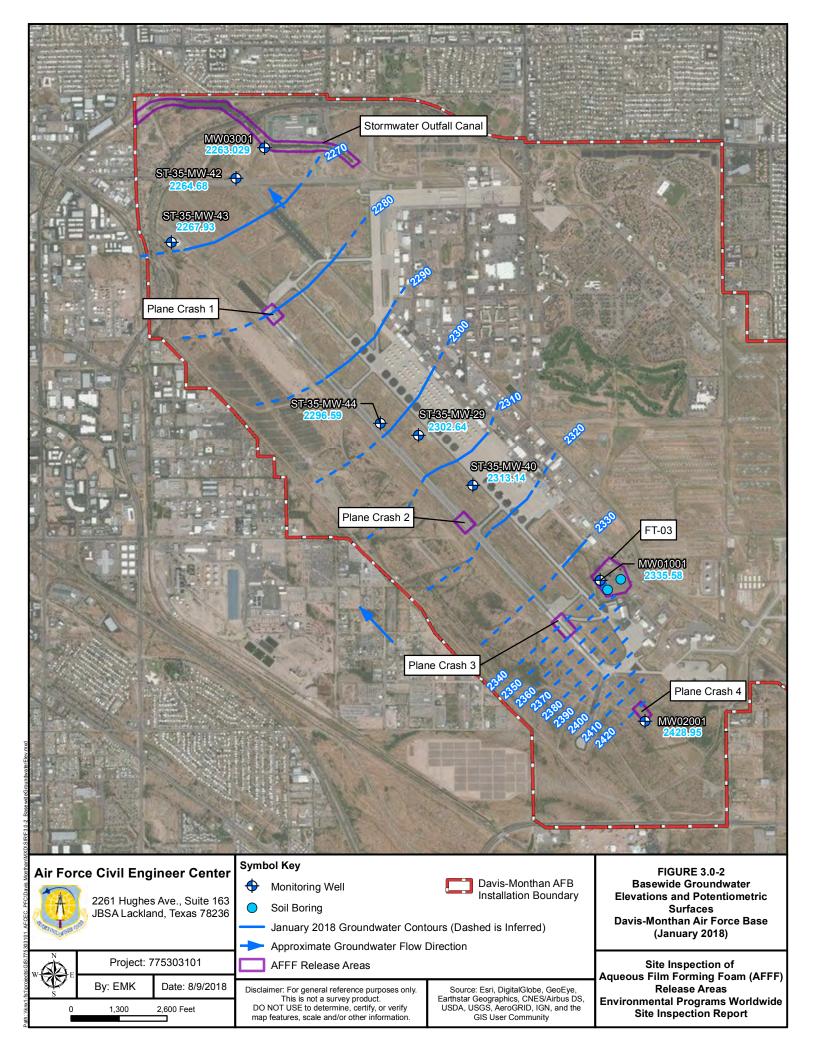


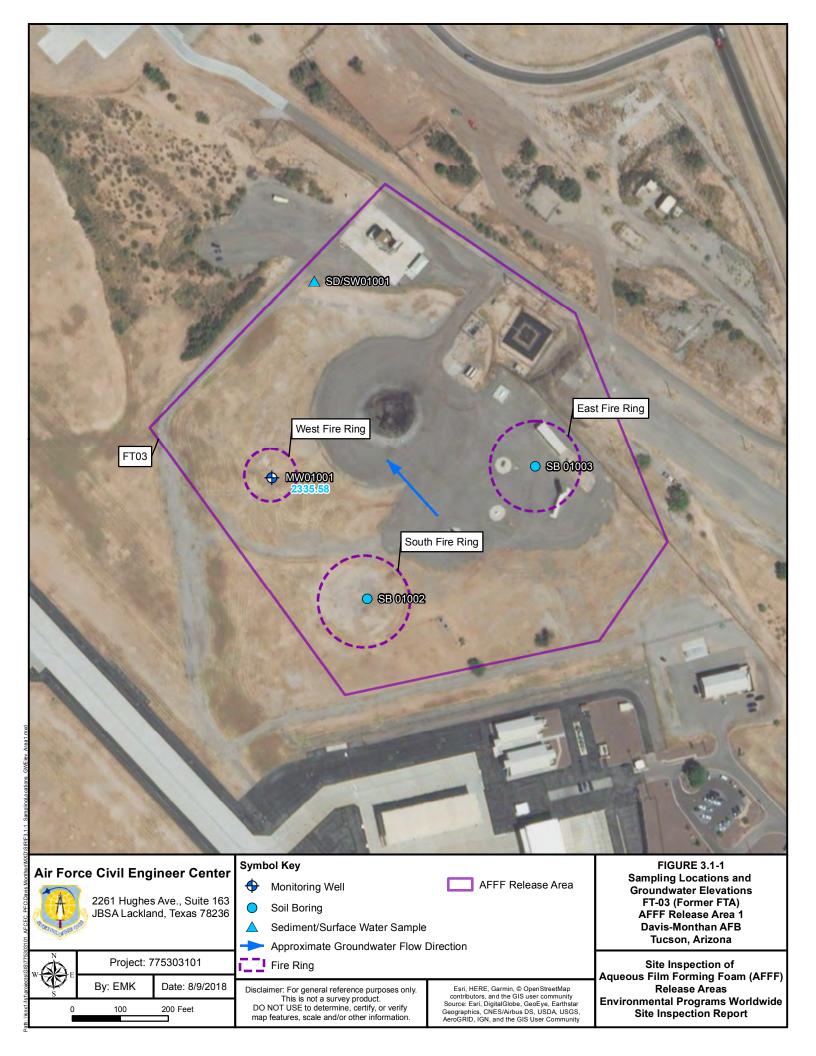


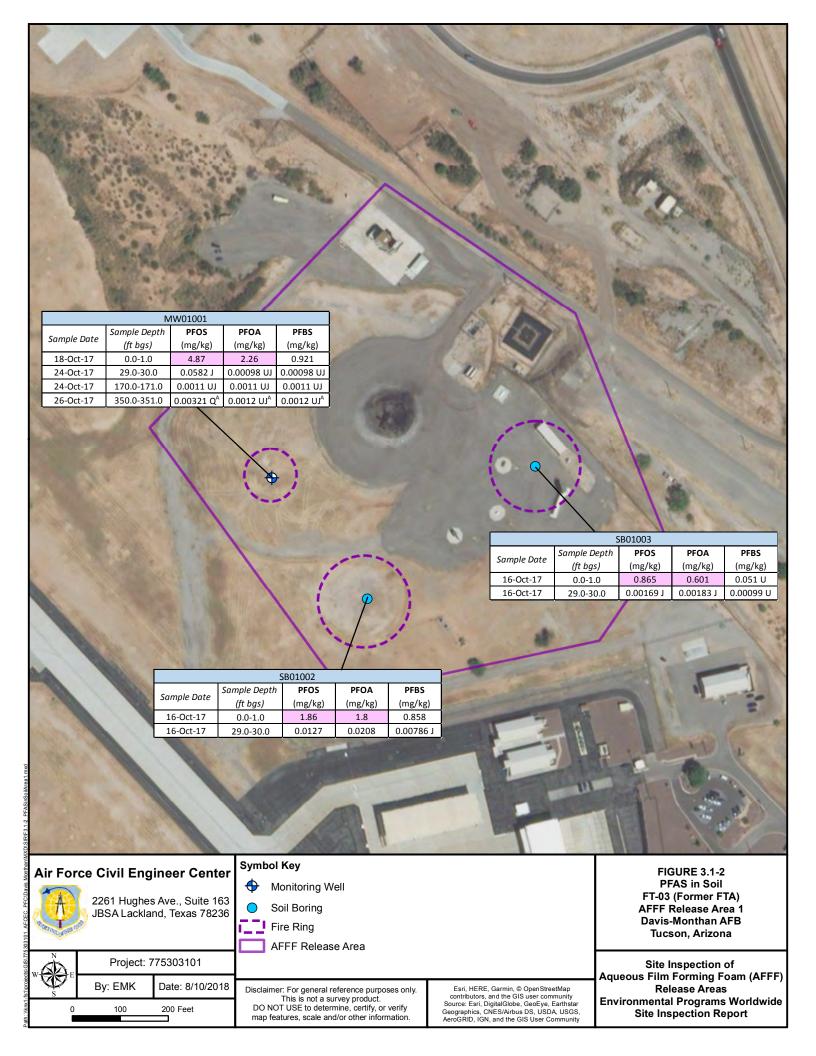


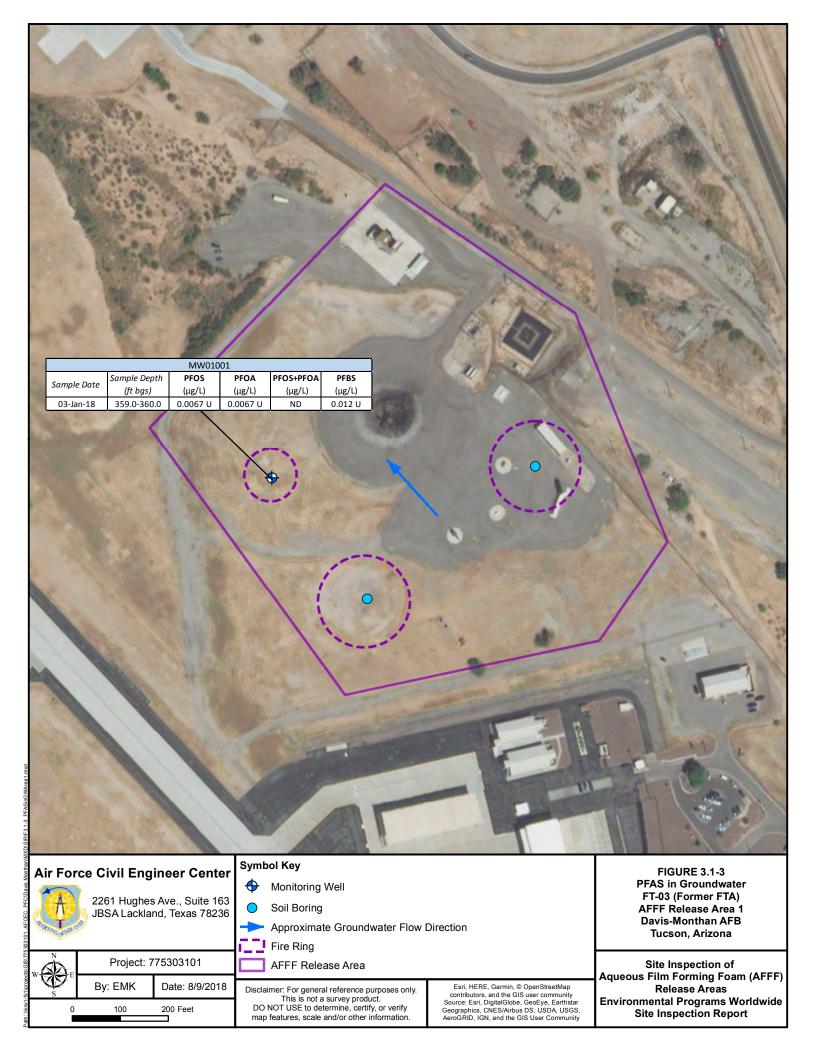


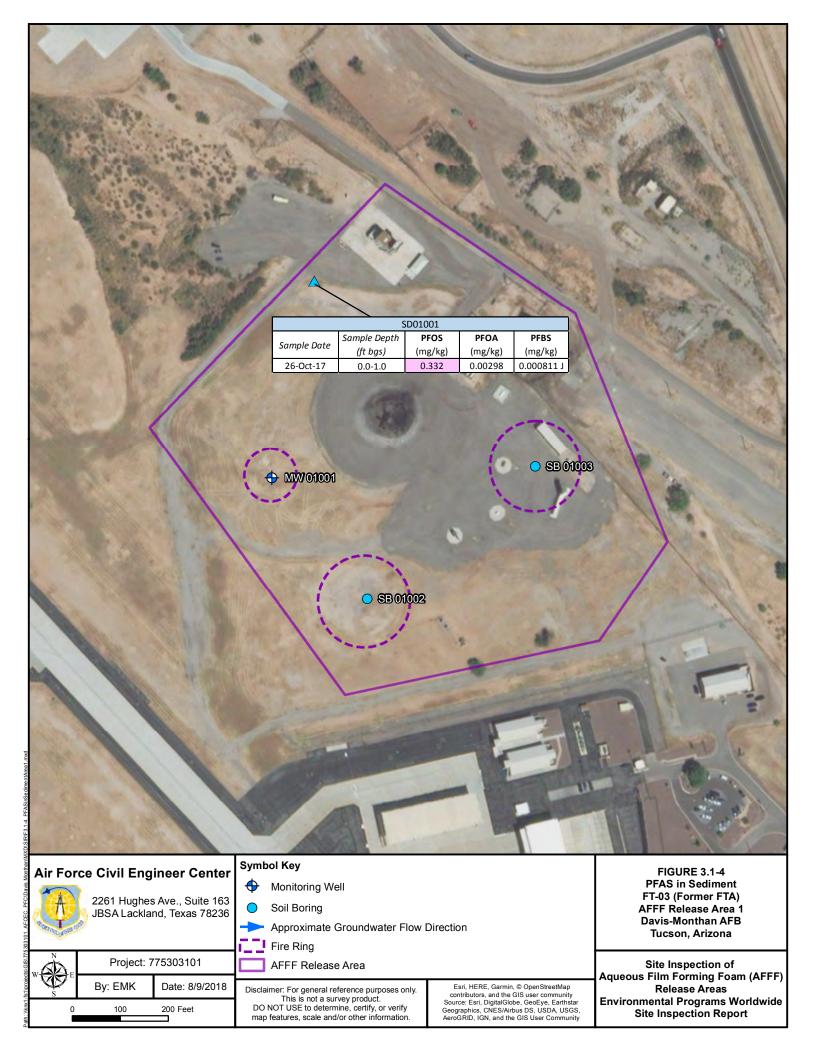




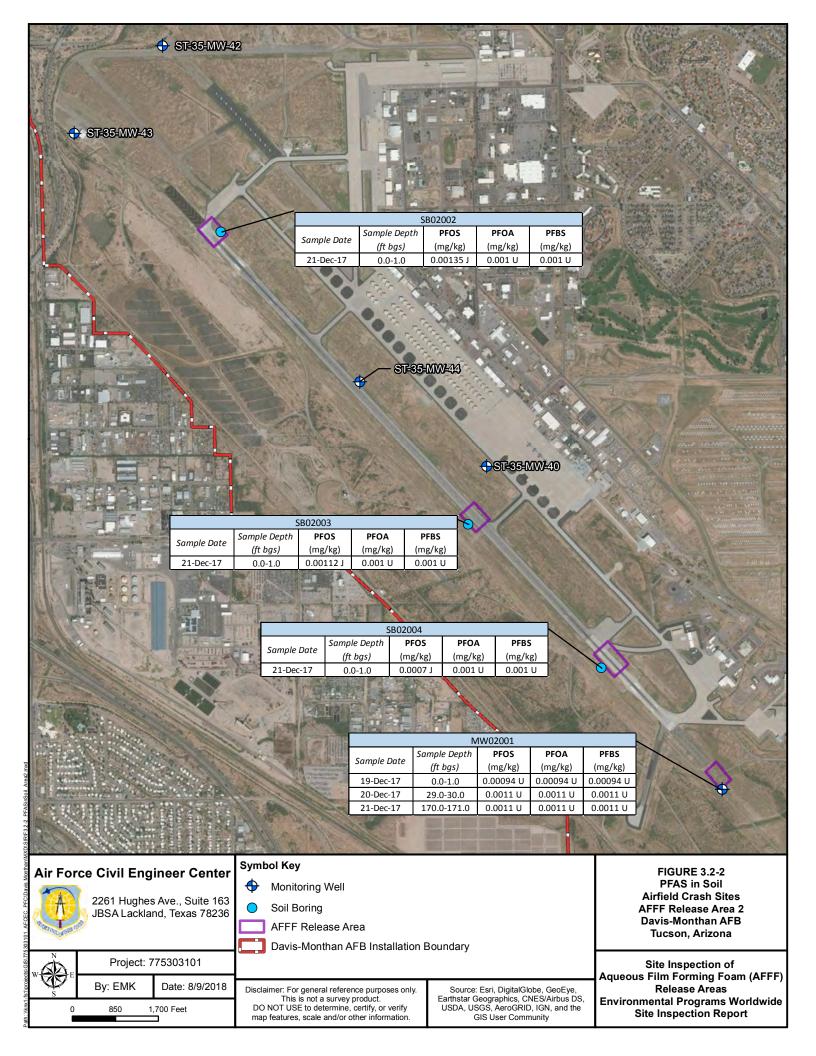


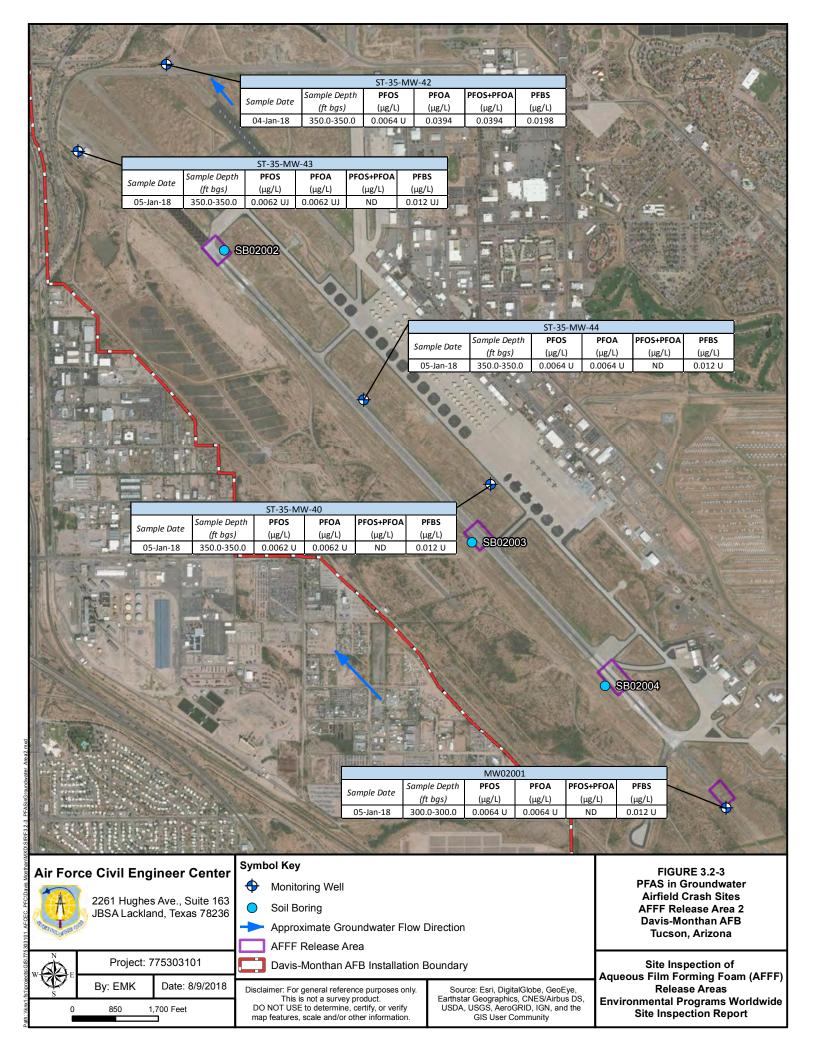


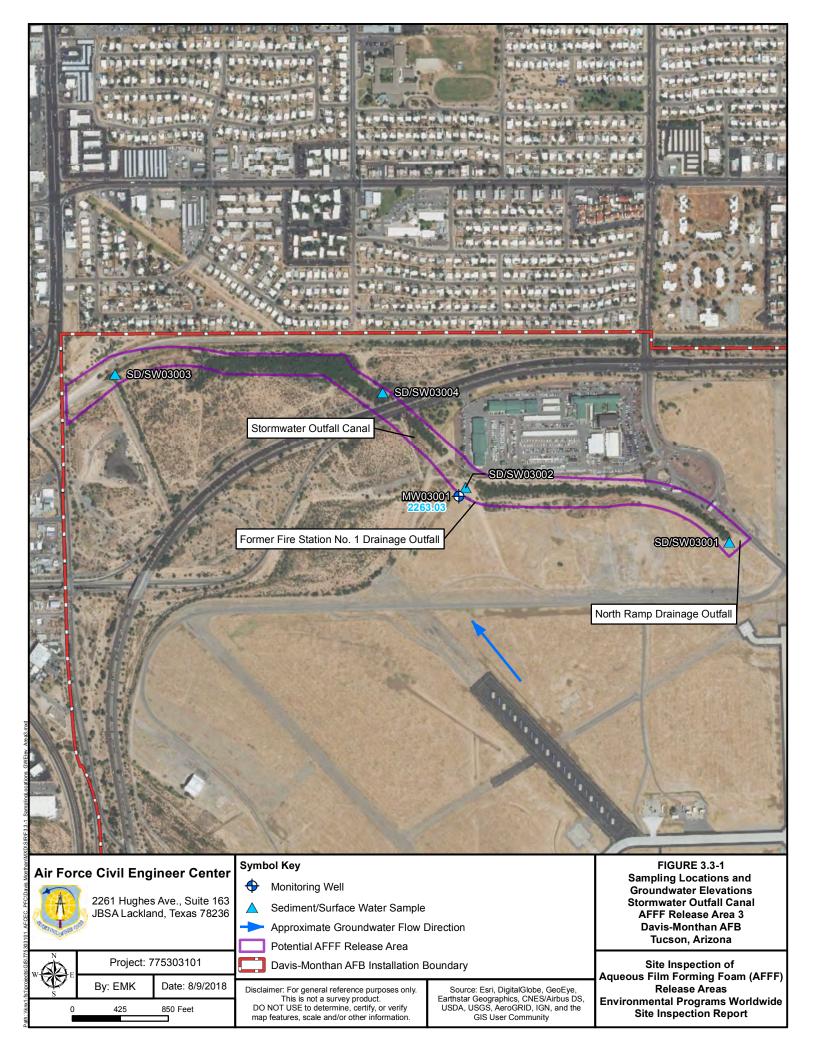


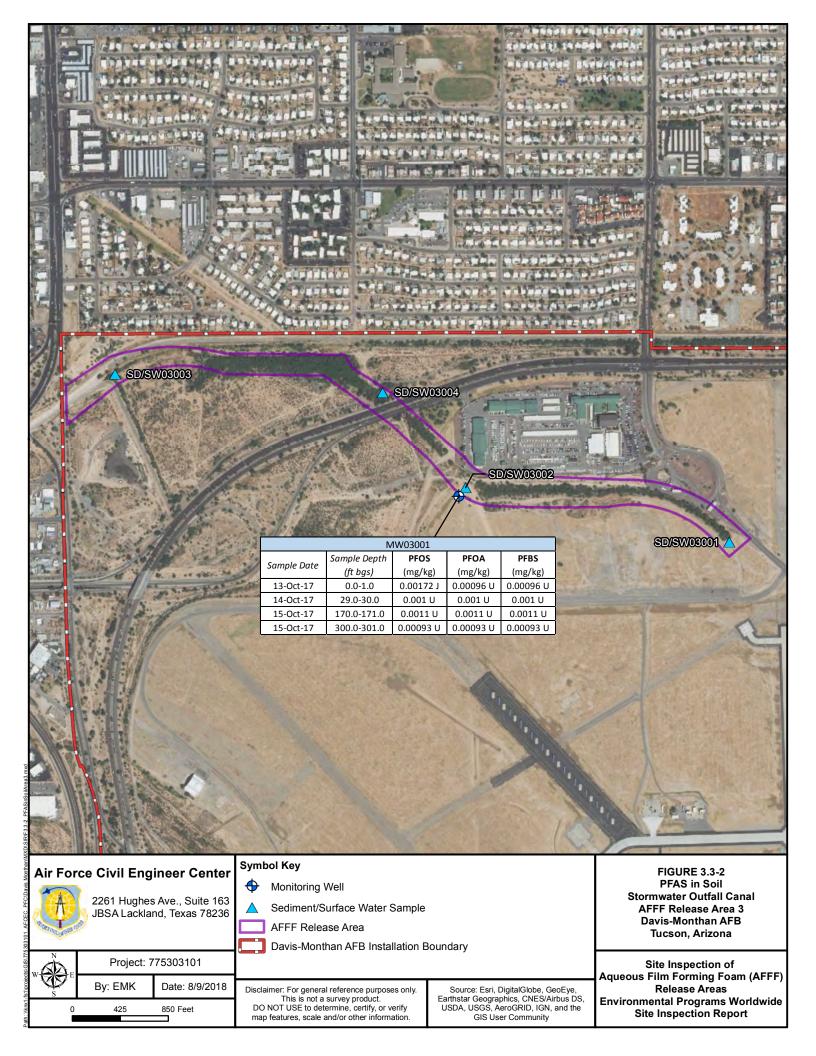


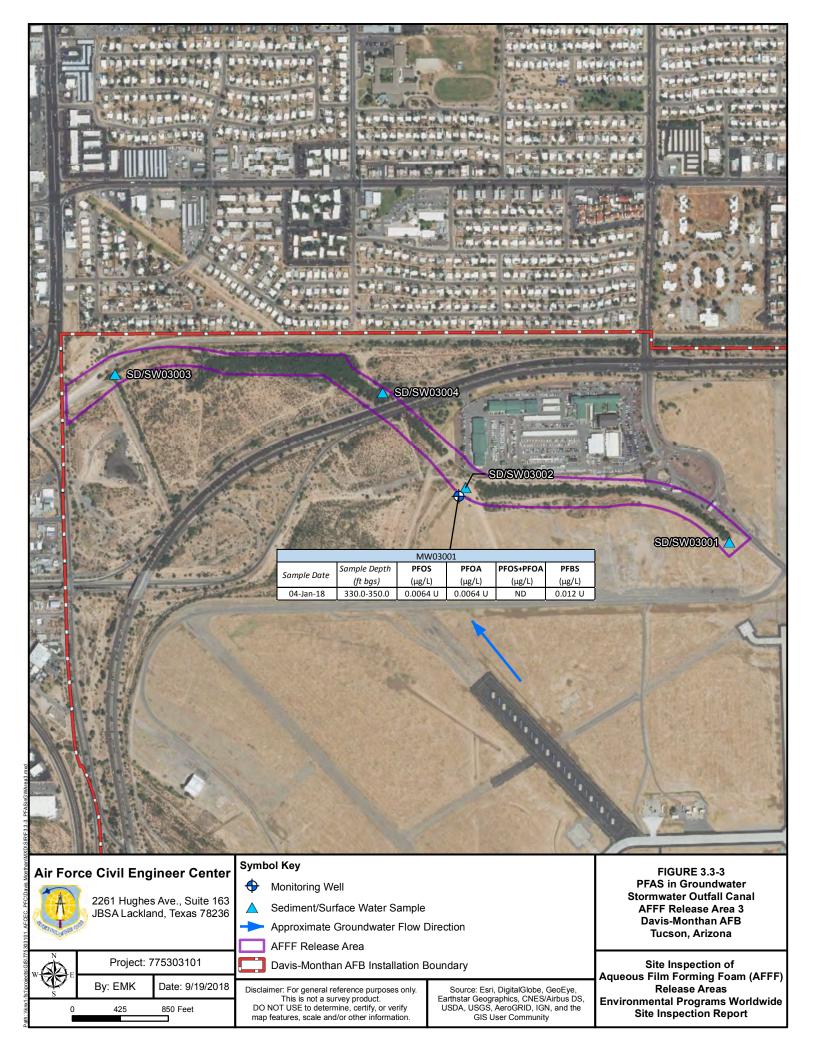












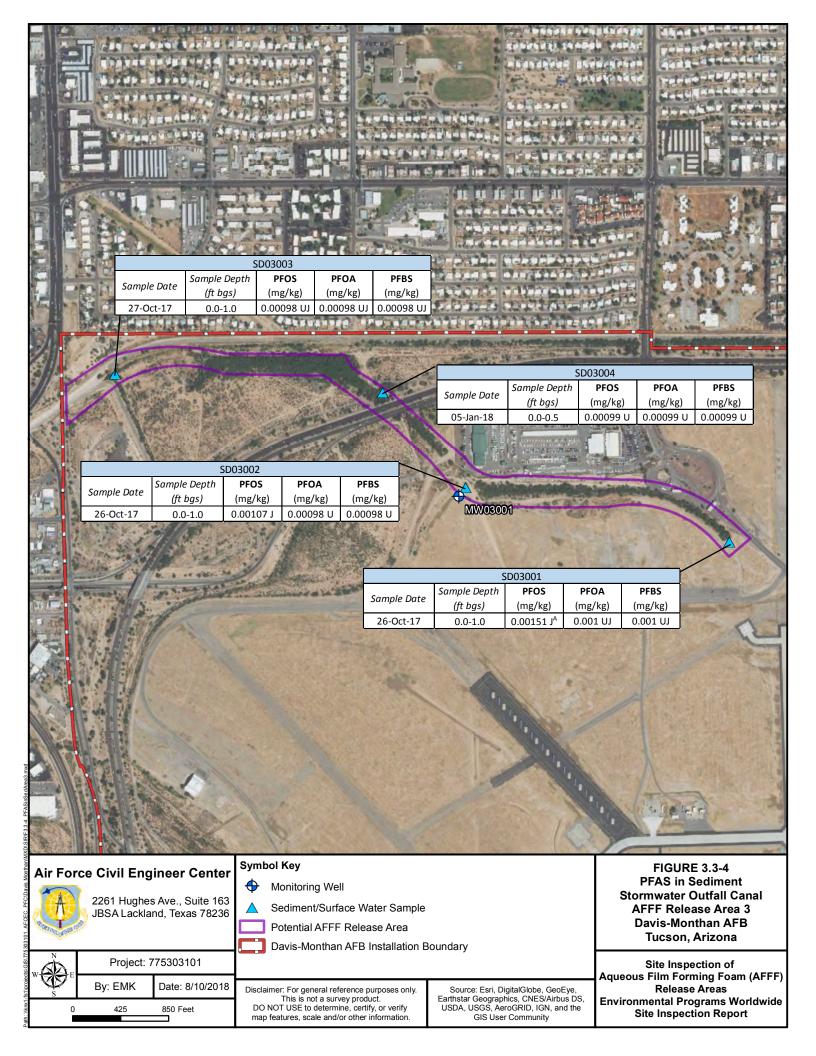
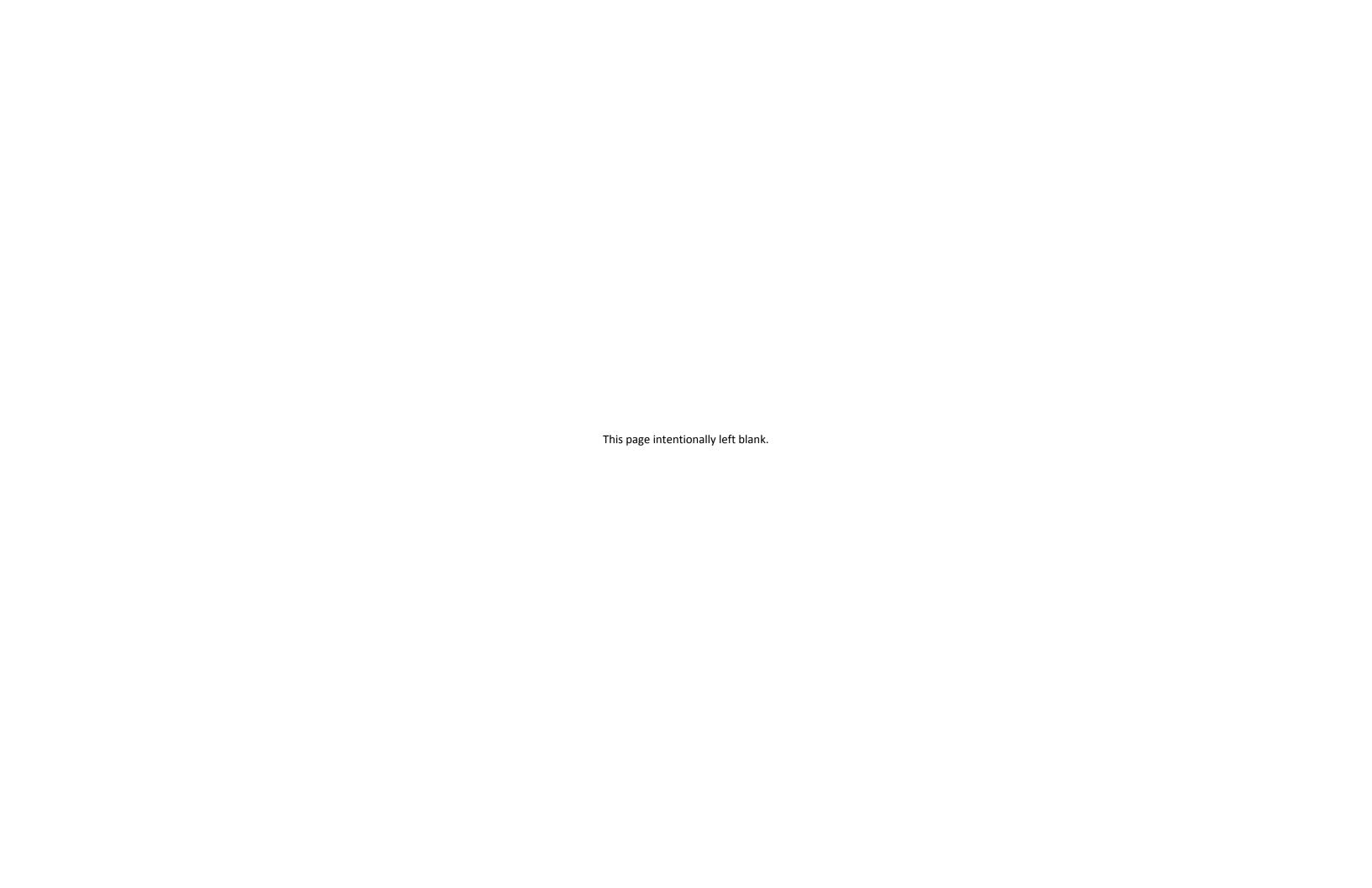


Figure 4.3-1 4-Mile Well Inventory provides information about the type and location of off-base private sampling sources. It contains personal privacy information that is not publicly releasable under the Freedom of Information Act, 5 U.S.C. § 552, and is maintained in a separate portion of the Administrative Record that is not accessible to the public.



(b) (6)

The Key to Figure 4.3-1 4-Mile Well Inventory provides information about the type and location of off-base private sampling sources. It contains personal privacy information that is not publicly releasable under the Freedom of Information Act, 5 U.S.C. § 552, and is maintained in a separate portion of the Administrative Record that is not accessible to the public.

(b) (6)

The Key to Figure 4.3-1 4-Mile Well Inventory provides information about the type and location of off-base private sampling sources. It contains personal privacy information that is not publicly releasable under the Freedom of Information Act, 5 U.S.C. § 552, and is maintained in a separate portion of the Administrative Record that is not accessible to the public.

(b) (6)

The Key to Figure 4.3-1 4-Mile Well Inventory provides information about the type and location of off-base private sampling sources. It contains personal privacy information that is not publicly releasable under the Freedom of Information Act, 5 U.S.C. § 552, and is maintained in a separate portion of the Administrative Record that is not accessible to the public.

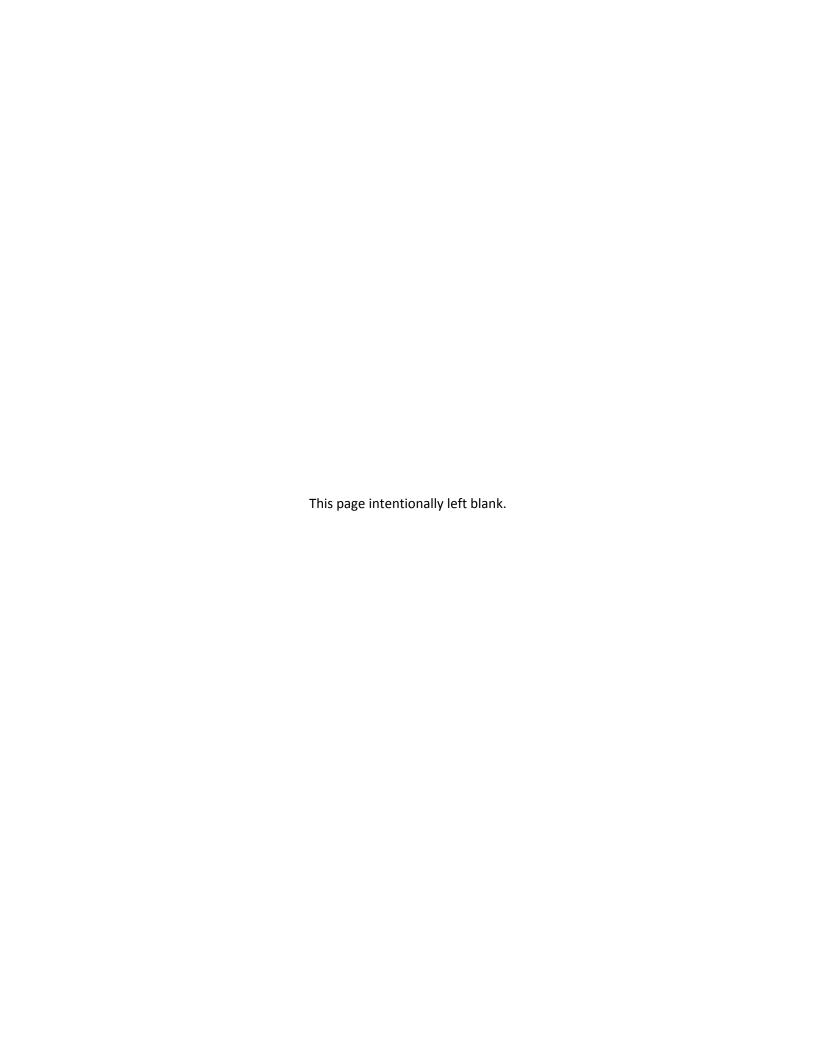
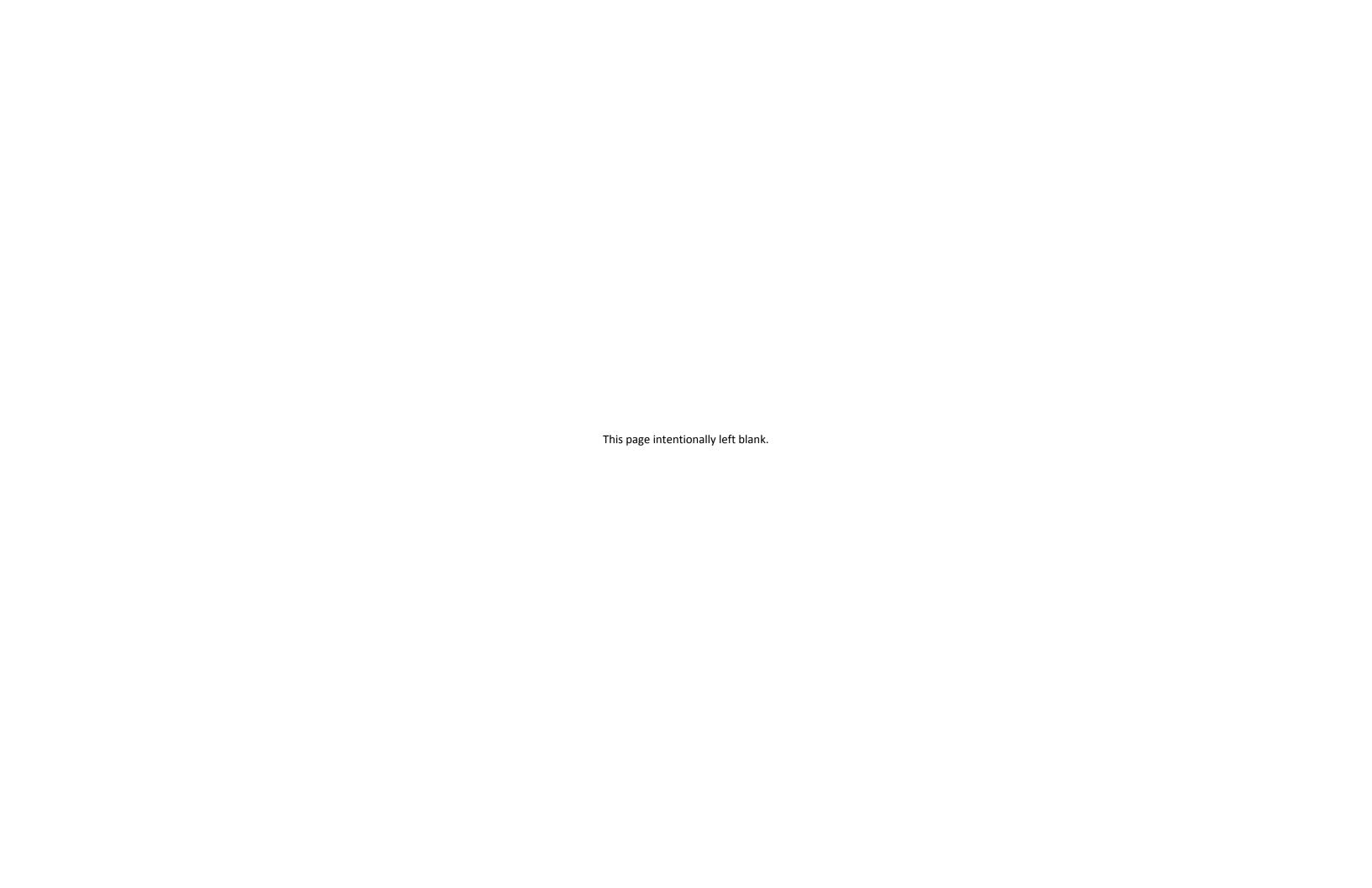
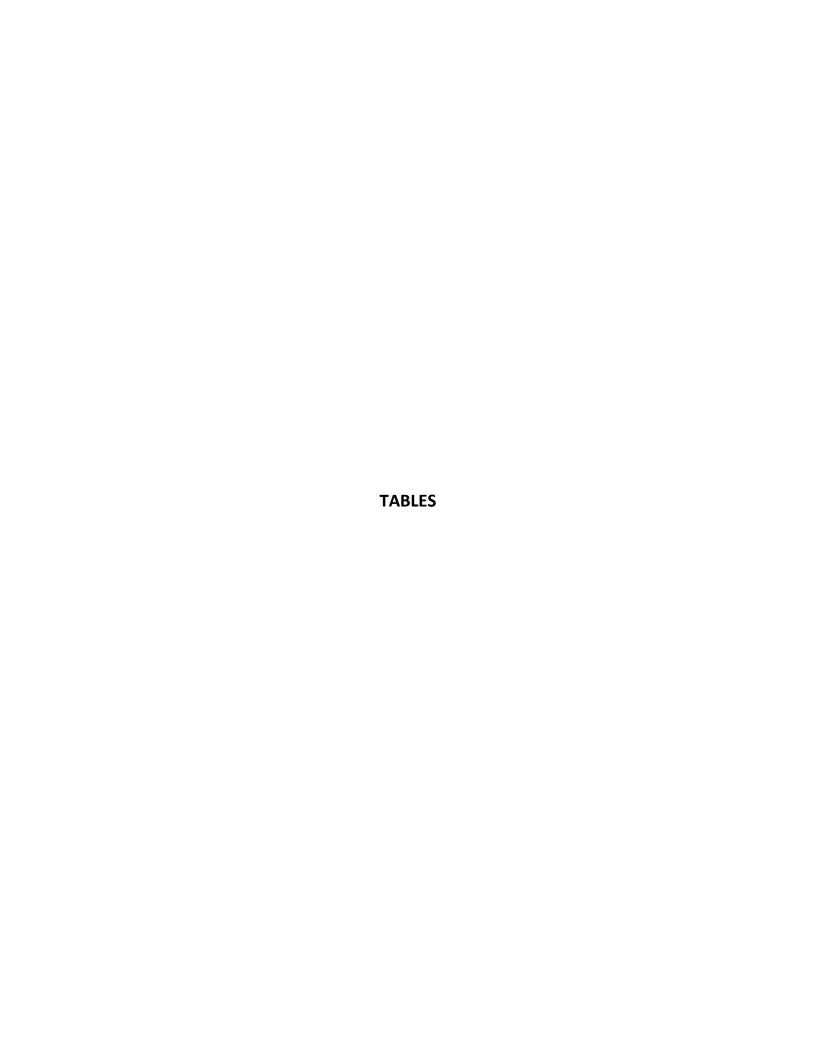


Figure 4.3-2 4-Mile Well Inventory (Downgradient wells) provides information about the type and location of off-base private sampling sources. It contains personal privacy information that is not publicly releasable under the Freedom of Information Act, 5 U.S.C. § 552, and is maintained in a separate portion of the Administrative Record that is not accessible to the public.





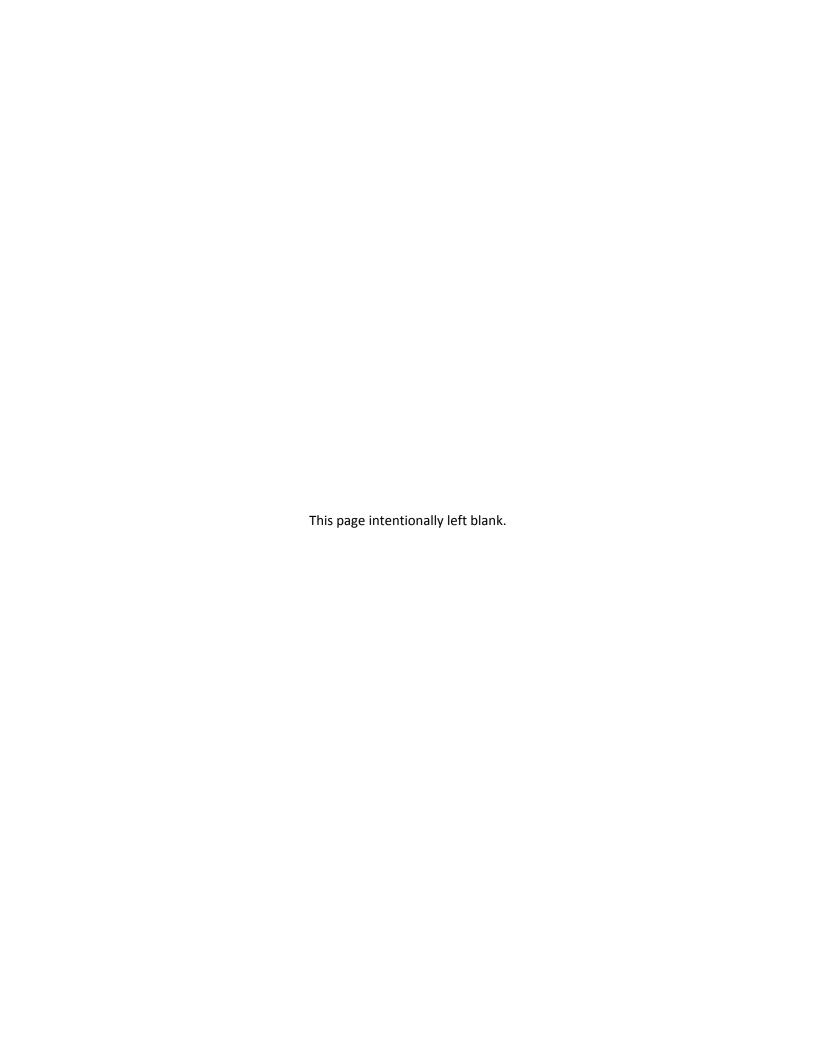


Table 3.1-1 Summary of Soil Analytical Testing Results Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Site Inspection Report, Davis-Monthan Air Force Base, Arizona

									Site ilispec	tion keport, Dav	115-IVIUIILIIAII AII	Force Base, Ari	2011a								
					Analyte:	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorobutanesulfonic acid (PFBS)	6:2 Fluorotelomer sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonate (8:2 FTS)	N-Ethyl perfluorooctanesulfonamid oacetic acid (NETFOSAA)	N-Methyl perfluorooctanesulfonamid oacetic acid (NMEFOSAA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
	1	ı	1	Screen	ing Level:	0.1261	0.126 ¹	130²	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AFFF Area	Location	Sample ID	Sample Date	Sample Depth (ft.)	Sample Type	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
		DAVIS01-SO-001	18-Oct-17	0.0-1.0	N	4.87	2.26	0.921	6.09	NA	0.042 U	0.042 U	0.01 U	0.01 U	0.424	9.3	3.23	0.0253	0.01 U	0.01 U	0.01 U
1		DAVIS01-SO-002	24-Oct-17	29.0-30.0	N	0.0582 J	0.00098 UJ	0.00098 UJ	0.0039 UJ	0.0039 U	0.0039 U	0.0039 U	0.00098 U	0.00098 U	0.00098 UJ	0.00098 UJ	0.000673 J	0.00098 U	0.00098 U	0.00098 U	0.00098 U
		DAVIS01-SO-003	24-Oct-17	170.0-171.0	N	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0043 UJ	0.0043 UJ	0.0043 UJ	0.0043 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ
		DAVIS01-SO-004	26-Oct-17	350.0-351.0	N	0.00062 Q	0.0012 U	0.0012 U	0.0047 U	0.0047 U	0.0047 U	0.0047 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
		DAVIS-FD-SO-001	26-Oct-17	350.0-351.0	FD	0.00321 Q	0.0012 UJ	0.0012 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ	0.0012 UJ	0.0012 UJ	0.0012 UJ	0.0012 UJ	0.0012 UJ	0.0012 UJ	0.0012 UJ	0.0012 UJ	0.0012 UJ
	SB01002	DAVIS01-SO-005	16-Oct-17	1	N	1.86	1.8	0.858	4.97	0.484 J	0.042 U	0.042 U	0.011 U	0.011 U	0.557	8.8	2.93	0.0157 J	0.011 U	0.011 U	0.011 U
		DAVIS01-SO-006 DAVIS01-SO-007	16-Oct-17 16-Oct-17		N	0.0127 0.865	0.0208	0.00786 J 0.051 U	0.131 0.837	0.021 U	0.021 U 0.21 U	0.021 U	0.0052 U 0.051 U	0.0052 U	0.00407 J 0.051 U	0.0539 1.08	0.026 0.0586 J	0.0052 U 0.051 U	0.0052 U 0.051 U	0.0052 U 0.051 U	0.0052 U 0.051 U
	SB01003	DAVIS01-SO-007	16-Oct-17		N N	0.863 0.00169 J	0.00183 J	0.001 U	0.00328 J	0.21 U 0.004 U	0.21 U	0.21 U 0.004 U	0.001 U	0.051 U 0.00099 U	0.001 U	0.00457	0.0386 J 0.0015 J	0.001 U	0.001 U	0.001 U	0.001 U
		DAVIS02-SO-001	19-Dec-17		N	0.00103 J	0.00103 J	0.00093 U	0.00328 J	0.004 U	0.004 U	0.004 U	0.00094 U	0.00094 U	0.00094 U	0.00094 U	0.0013 J	0.00094 U	0.00094 U	0.00093 U	0.00094 U
		DAVIS-FD-SO-002	19-Dec-17		FD	0.001 U	0.001 U	0.001 U	0.0041 U	0.0041 U	0.0041 U	0.0041 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	MW02001	DAVIS02-SO-002	20-Dec-17	29.0-30.0	N	0.0011 U	0.0011 U	0.0011 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
2		DAVIS02-SO-003	21-Dec-17	170.0-171.0	N	0.0011 U	0.0011 U	0.0011 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
	SB02002	DAVIS02-SO-005	21-Dec-17	0.0-1.0	N	0.00135 J	0.001 U	0.001 U	0.0041 U	0.0041 U	0.0041 U	0.0041 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	SB02003	DAVIS02-SO-006	21-Dec-17	0.0-1.0	N	0.00112 J	0.001 U	0.001 U	0.0041 U	0.0041 U	0.0041 U	0.0041 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	SB02004	DAVIS02-SO-007	21-Dec-17	0.0-1.0	N	0.0007 J	0.001 U	0.001 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
		DAVIS03-SO-001	13-Oct-17	0.0-1.0	N	0.00172 J	0.00096 U	0.00096 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U	0.00096 U
		DAVIS03-SO-002	14-Oct-17	29.0-30.0	N	0.001 U	0.001 U	0.001 U	0.0041 U	0.0041 U	0.0041 U	0.0041 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
3	MW03001	DAVIS03-SO-003	15-Oct-17	170.0-171.0	N	0.0011 U	0.0011 U	0.0011 U	0.0045 U	0.0045 U	0.0045 U	0.0045 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
		DAVIS03-SO-004	15-Oct-17	300.0-301.0	N	0.00093 U	0.00093 U	0.00093 U	0.0037 U	0.0037 U	0.0037 U	0.0037 U	0.00093 U	0.00093 U	0.00093 U	0.00093 U	0.00093 U	0.00093 U	0.00093 U	0.00093 U	0.00093 U

Notes:

PFAS analysis by Modified USEPA Method 537 using Liquid Chromatography and Tandem Mass Spectrometry

Screening levels, based on a residential exposure scenario, calculated using the EPA Regional Screening Level calculator [https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search]

²USEPA Residential Screening Levels (November 2017) [https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017]

Highlighted cells indicate concentrations exceeding the Screening Level.

AFFF = Aqueous Film Forming Foam

B = The analyte was found in an associated blank, as well as in the sample.

FD = Field Duplicate Sample

ft - feet

ID = Identification

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

mg/kg - milligrams per kilogram

N = Normal Field Sample

NA = Not applicable

Q = The analyte is both B qualified because of blank detection and J qualified because of an additional QC issue.

R - Result was rejected during data validation. Please see data validation report for more information.

U = The analyte was analyzed for, but was not detected above the reported limit of detection (LOD).

UJ = The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

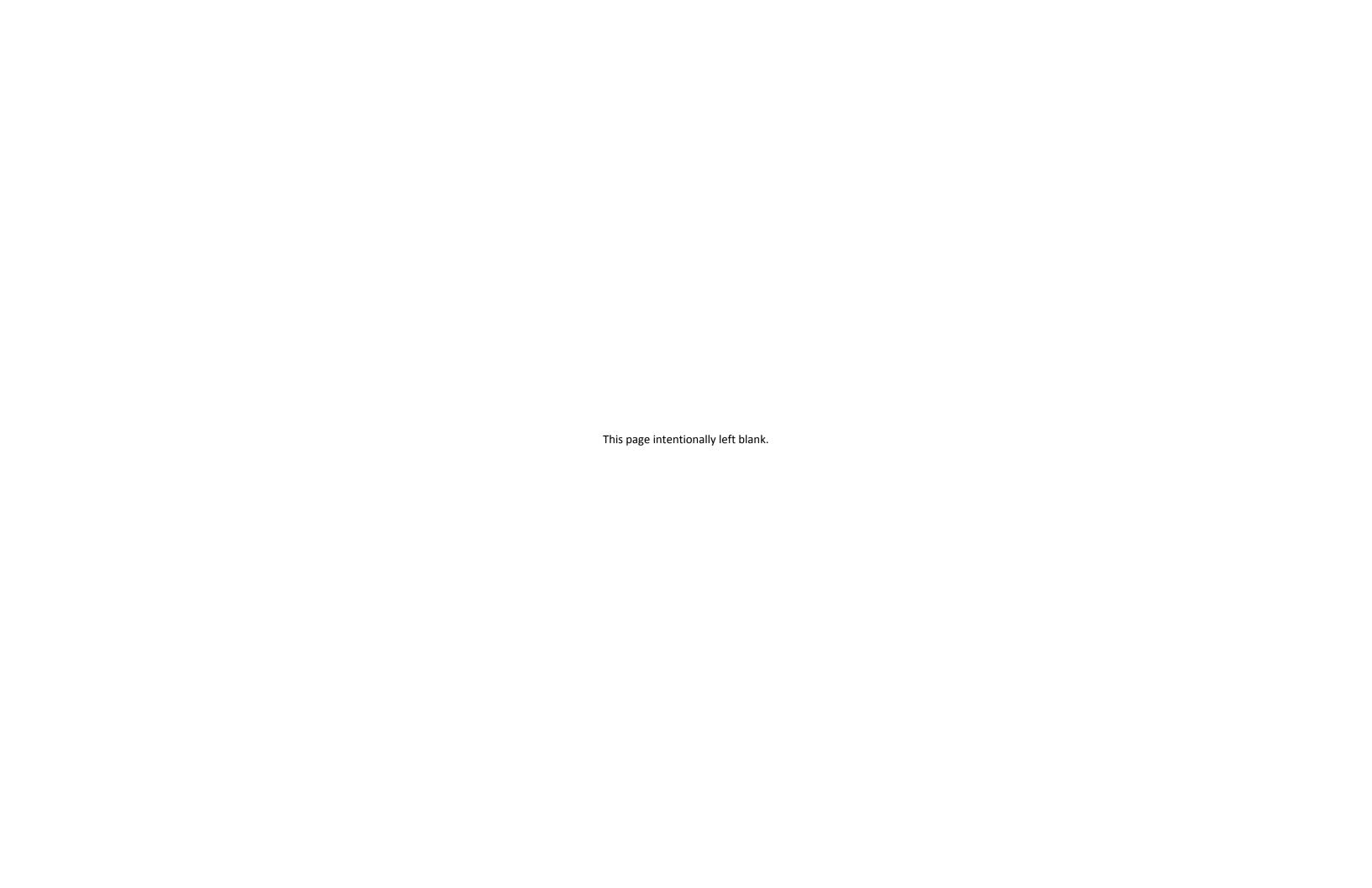


Table 3.1-2
Summary of Soil General Chemistry Analytical Testing Results
Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas
Site Inspection Report, Davis-Monthan Air Force Base, Arizona

					Analyte:	Hd	ТОС
AFFF Area	Location	Sample ID	Sample Date	Sample Depth (ft.)	Sample Type	SU Units	mg/kg
1	DAVIS01	DAVIS01-C-1	18-Oct-17	0.0-1.0	N	7.49	4090
1	DAVISOI	DAVIS01-C-2	26-Oct-17	350.0-351.0	N	8.64	171 J
2	DAVIS02	DAVIS02-C-1	05-Jan-18	0.0-1.0	N	8.51	3430
3	DAVIS03	DAVIS03-C-1	13-Oct-17	0.0-1.0	N	8.35	5570
3	DAVISOS	DAVIS03-C-2	15-Oct-17	300.0-301.0	N	8.9	67.5 J

Notes:

AFFF - aqueous film forming foam

ft - feet

ID - identification

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

N - normal field sample

mg/kg - milligrams per kilogram

pH = potential of Hydrogen

S.U. - standard units

TOC - Total Organic Carbon

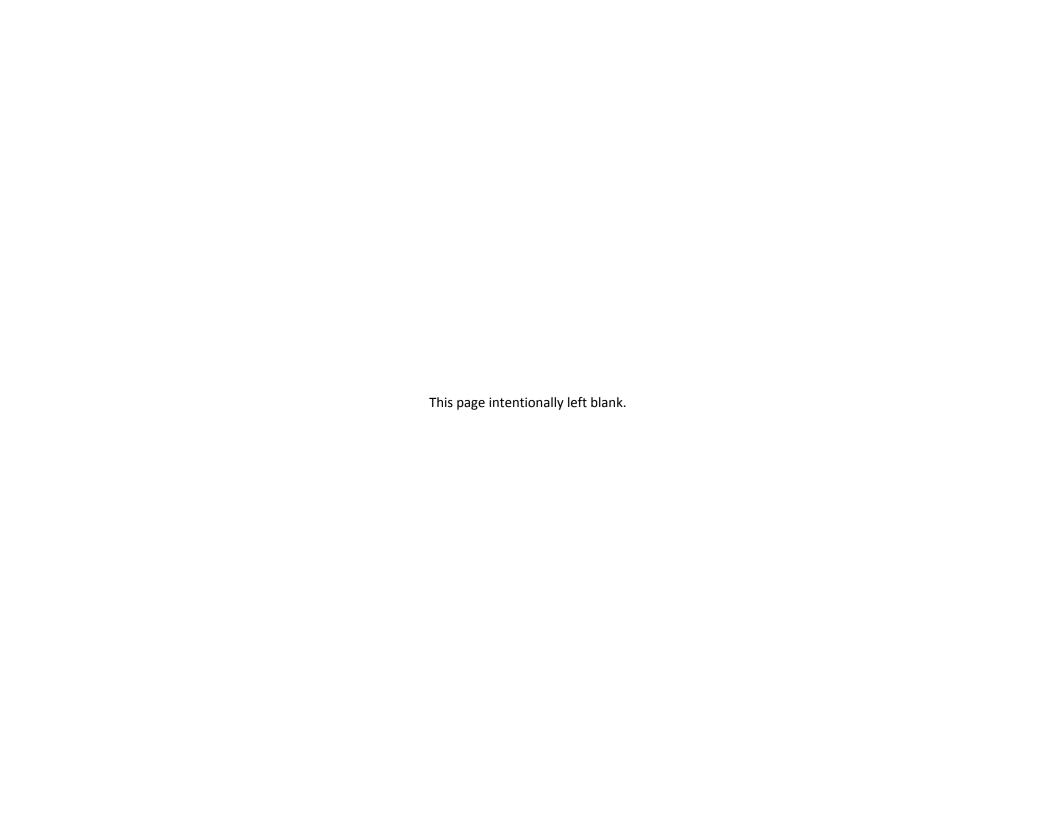


Table 3.1-3
Summary of Groundwater Analytical Testing Results
Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas
Site Inspection Report, Davis-Monthan Air Force Base, Arizona

				Uoolth	Analyte:	O.O. Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	PFOS+PFOA	Perfluorobutanesulfonic acid (PFBS)	5 6:2 Fluorotelomer sulfonate (6:2 FTS)	S:2 Fluorotelomer sulfonate (8:2 FTS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NETFOSAA)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMEFOSAA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Sperfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
				EPA RSL T	Advisory: apwater1:	0.07 NA	0.07 NA	0.07 NA	NA 40	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA
AFFF Area	Location	Sample ID	Sample Date		Sample Type	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
1	MW01001	DAVIS01-GW-001	03-Jan-18	359.0-360.0	N	0.0067 U	0.0067 U	ND	0.012 U	0.033 U	0.033 U	0.033 U	0.033 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.0067 U	0.012 U	0.012 U	0.012 U
	MW02001	DAVIS02-GW-001	05-Jan-18	300.0-300.0	N	0.0064 U	0.0064 U	ND	0.012 U	0.032 U	0.032 U	0.032 U	0.032 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.0064 U	0.012 U	0.012 U	0.012 U
	1010002001	DAVIS-FD-GW-001	05-Jan-18	300.0-300.0	FD	0.0064 U	0.0064 U	ND	0.012 U	0.032 U	0.032 U	0.032 U	0.032 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.0064 U	0.012 U	0.012 U	0.012 U
2	ST-35-MW-40	DAVIS02-GW-004	05-Jan-18	350.0-350.0	N	0.0062 U	0.0062 U	ND	0.012 U	0.031 U	0.031 U	0.031 U	0.031 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.0062 U	0.012 U	0.012 U	0.012 ∪
	ST-35-MW-42	DAVIS02-GW-002	04-Jan-18	350.0-350.0	N	0.0064 U	0.0394	0.0394	0.0198	0.032 U	0.032 U	0.032 U	0.032 U	0.012 U	0.012 U	0.0304	0.218	0.128	0.0064 U	0.012 U	0.012 U	0.012 U
	ST-35-MW-43	DAVIS02-GW-003	05-Jan-18	350.0-350.0	N	0.0062 UJ	0.0062 UJ	ND	0.012 UJ	0.031 UJ	0.031 U	0.031 U	0.031 U	0.012 U	0.012 U	0.012 UJ	0.012 UJ	0.012 UJ	0.0062 U	0.012 U	0.012 U	0.012 U
	ST-35-MW-44	DAVIS02-GW-006	05-Jan-18	350.0-350.0	N	0.0064 U	0.0064 U	ND	0.012 U	0.032 U	0.032 U	0.032 U	0.032 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.0064 U	0.012 U	0.012 U	0.012 U
3	MW03001	DAVIS03-GW-001	04-Jan-18	330.0-350.0	N	0.0064 U	0.0064 U	ND	0.012 U	0.032 U	0.032 U	0.032 U	0.032 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.0064 U	0.012 U	0.012 U	0.012 U

Notes:

Purple Shaded - Exceeds USEPA Health Advisory

PFAS analysis by Modified USEPA Method 537 using Liquid Chromatography and Tandem Mass Spectrometry

Underlined results indicate concentrations exceeding the USEPA Tap Water RSL

AFFF - aqueous film forming foam

FD - field duplicate sample

ft - feet

ID - identification

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

μg/L - micrograms per liter

N - normal field sample

NA - not applicable

U - The analyte was analyzed for but was not detected above the reporting limit of detection (LOD).

UJ - The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

USEPA - United States Environmental Protection Agency

PFOS+PFOA = Co-occurrence of PFOA and PFOS (PFOA + PFOS) in aqueous samples is reported using the following guidelines

- 1. If both PFOA and PFOS are detected at or above the detection limit (DL), then the sum of PFOA+ PFOS is reported
- 2. If only PFOS or only PFOA is detected at or above the DL in groundwater, then the concentration of the detected analyte only is reported
- 3. If neither PFOA nor PFOS is detected at or above the DL, then PFOA + PFOS is reported as "ND" representing Not Detected

¹Health Advisory from USEPA Office of Water, 2016a and 2016b, Health Advisories (HAs) for drinking water.

²USEPA Residential Screening Levels (November 2017) [https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017]

Table 3.1-4

Summary of Sediment Analytical Testing Results Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Site Inspection Report, Davis-Monthan Air Force Base, Arizona

				Screen	Analyte:	Perfluoroo	Perfluorooctanoic acid (PFOA)	Perfluorobutanesulfonic acid (PFBS)	6:2 Fluorotelomer sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonate (8:2 FTS)	N-Ethyl Sperfluorooctanesulfonamido acetic acid (NETFOSAA)	N-Methyl Sperfluorooctanesulfonamido acetic acid (NMEFOSAA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
AFFF Area	Location	Sample ID	Sample Date	Sample Depth (ft.)	Sample	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1	SD/SW01001	DAVIS01-SD-001	26-Oct-17	0.0-1.0	N	0.332	0.00298	0.000811 J	0.00865	0.694	0.004 U	0.004 U	0.0346	0.014	0.000993 J	0.0109	0.00358	0.00129 J	0.00145 J	0.0038	0.0224
	SD/SW02001	DAVIS03-SD-001	26-Oct-17	0.0-1.0	N	0.00133 J	0.001 UJ	0.001 UJ	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	SD/SW03001	DAVIS-FD-SD-001	26-Oct-17	0.0-1.0	FD	0.00151 J	0.001 UJ	0.001 UJ	0.004 UJ	0.004 U	0.004 U	0.004 U	0.001 U	0.001 U	0.001 UJ	0.001 UJ	0.001 UJ	0.001 U	0.001 U	0.001 U	0.001 U
3	SD/SW03002	DAVIS03-SD-002	26-Oct-17	0.0-1.0	N	0.00107 J	0.00098 U	0.00098 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.00098 U	0.00098 U	0.00098 U	0.00098 U	0.00098 U	0.00098 U	0.00098 U	0.00098 U	0.00098 U
	SD/SW03003	DAVIS03-SD-003	27-Oct-17	0.0-1.0	N	0.00098 UJ	0.00098 UJ	0.00098 UJ	0.0039 UJ	0.0039 UJ	0.0039 U	0.0039 U	0.00098 UJ	0.00098 UJ	0.00098 UJ	0.00098 UJ	0.00098 UJ	0.00098 UJ	0.00098 UJ	0.00098 UJ	0.00098 UJ
	SD/SW03004	DAVIS03-SD-004	05-Jan-18	0.0-0.5	N	0.00099 U	0.00099 U	0.00099 U	0.004 U	0.004 U	0.004 U	0.004 U	0.00099 U	0.00099 U	0.00099 U	0.00099 U	0.00099 U	0.00099 U	0.00099 U	0.00099 U	0.00099 U

Notes:

Highlighted cells indicate concentrations exceeding the Screening Level.

AFFF = Aqueous Film Forming Foam

FD - Field Duplicate Sample

ft - Feet

ID - Identification

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

mg/kg - milligrams per kilogram

N - Normal Field Sample

NA - Not applicable

U - The analyte was analyzed for, but was not detected above the reported limit of detection (LOD).

UJ - The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

PFAS analysis by Modified USEPA Method 537 using Liquid Chromatography and Tandem Mass Spectrometry

¹Screening levels calculated using the EPA Regional Screening Level calculator [https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search]

²USEPA Regional Screening Levels (November, 2017a) [https://semspub.epa.gov/work/HQ/197025.pdf]

Table 3.0-1 Monitoring Well Construction Details Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Site Inspection Report, Davis-Monthan AFB, Tucson, Arizona

AFFF Release Area	Location ID	Installation Date	Well Material	Northing	Easting	Ground Elevation (ft amsl)	TOC Elevation (ft amsl)	Well Depth (ft bgs)	Well Diameter (in)	Screen Length (ft)	Screen Size (in)	Screen Interval (ft bgs)
1	MW01001	10/27/2017	PVC	423431.3773	1024222.800	2685.803	2686.07	369.0	4.0	20	0.02	349-369
	MW02001	12/22/2017	PVC	419608.1853	1025438.002	2711.604	2711.44	305.0	4.0	20	0.02	285-305
	ST-35-MW-40	2/28/2006	PVC	426001.280	1020773.120	NA	2651.21	378.0	5.5	50	0.02	330-380
2	ST-35-MW-42	7/21/2006	PVC	434316.240	1014359.334	2564.027	2563.9	380.0	5.5	50	0.02	318-368
	ST-35-MW-43	7/18/2006	PVC	432592.120	1012610.870	NA	2561.74	380.0	5.5	50	0.02	318-368
	ST-35-MW-44	9/29/2007	PVC	427674.487	1018266.420	NA	2624.73	380.0	5.5	50	0.02	318-368
3	MW03001	10/16/2017	PVC	435136.306	1015126.852	2565.485	2565.37	321.0	4.00	20	0.02	301-321

Notes:

AFFF - aqueous film forming foam amsl - above mean sea level bgs - below ground surface

ft - feet

in - inches NA - not available

PVC - Polyvinyl Chloride

TOC - top of casing

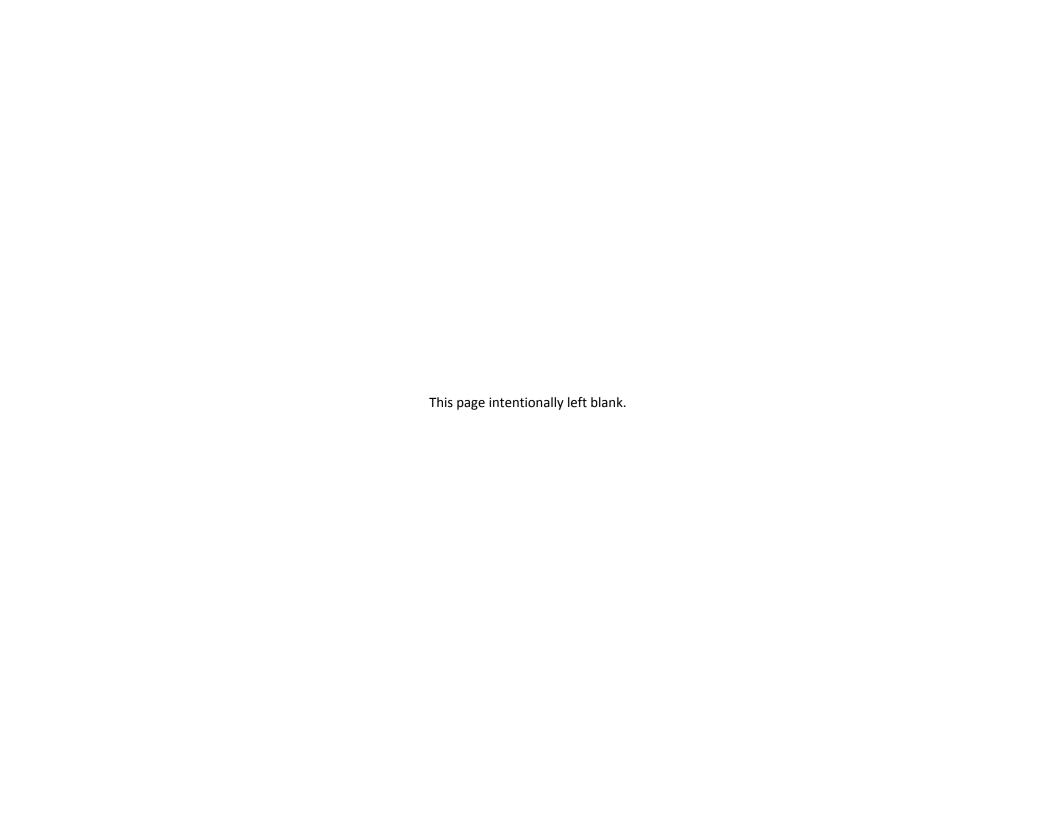


TABLE 4.0-1

Conceptual Site Model: Installation Wide Summary Site Inspection Report of Aqueous Film Forming Foam (AFFF) Release Areas Site Inspection Report, Davis Monthan Air Force Base, Tucson, Arizona

Description/History: • Years of operation: 1925 to • The Veg	Physical Profile pography: The topography of Davis Monthan AFB is relatively flat, gradually sloping downward to the north and northwest (URS, 2011).	Release Profile Contaminants of Potential	Exposure Profile	Ecological Profile
Description/History: • Years of operation: 1925 to • The Veg			C	Determine Englander
• Years of operation: 1925 to Veg			Current Land Use:Occupied by	Potential Ecological Receptors: (HGL, 2015).
· · · · · · · · · · · · · · · · · · ·	getation:	Concern:PFAS are the contaminants	Davis Monthan	• There are no sensitive
Current (HGL 2015)	Fhe vegetation in undeveloped areas consists of grasses, cactus, and scrub indigenous to desert. Scrub species include the creosote bush,	of potential concern during	AFB.	environments or wetlands
	pursage, and palo verde, while cactus species primary is represented by saguaro, barrel, prickly pear, and cholla (Innovative Technical	this investigation.	Future Land Use:	located within the
1	Solutions, Inc., 2010).	 Volatile organic compounds 	 Land use is not 	installation boundary
	n the more developed portions of the base, the vegetation is largely imported nonnative flora, which are artificially irrigated (Innovative	(VOCs), specifically	expected to	Threatened and Endangered
	Fechnical Solutions, Inc. 2010).	tetrachloroethene (PCE) and	change in the	Species: (HGL, 2015) (United
· 1	rface Water: (URS, 2011).	trichloroethene (TCE) and	future.	States Fish and Wildlife)
	The Surface drainage over most of the installation is collected by a system of swales and dry washes and is routed to the Stormwater Outfall	petroleum hydrocarbons	Potential	Amphibians: Chiricahua
	Canal then to the Tucson Diversion Channel, which is classified as a tributary of the Santa Cruz River.	are historical site	Receptors: (HGL,	Leopard Frog.
	A system of subsurface storm drainage pipes collects runoff along the flightline and main runway. The drainage pipes also route the runoff	contaminants.	2015)	Birds: Mexican Spotted
_	to the Stormwater Outfall Canal.	Media of Potential Concern:	Potential	Owl, Masked bobwhite
	Davis Monthan AFB also uses numerous catch basins and containment ponds to control stormwater runoff and prevent spills from leaving	Soil, sediment, and	receptors	quail, American peregrine
_	the installation.	groundwater.	associated with	falcon, California least tern,
_	Groundwater is recharged at the basin periphery and by streambed infiltration along the Santa Cruz River and its tributaries. The surface	Confirmed AFFF Releases:	current and	Yellow-billed Cuckoo,
	drainage over most of the installation is collected by a system of swales and dry washes and is routed to the Stormwater Outfall Canal then	• FT-03 (Former FTA): PFOS	future land use	Cactus Ferruginous Pygmy-
= -	to the Tucson Diversion Channel, which is classified as a tributary of the Santa Cruz River.	and PFOA were detected in	include USAF	Owl, Masked Bobwhite,
was transferred to the Tactical Soil :	·	surface soil above the	personnel and	Mountain Plover, Bald
	— Surface features at Davis Monthan AFB are composed of Mohave soils and Hantz loam. These soil types create a typical soil profile at the	USEPA RSLs. PFOS in	residents,	Eagle, Southwestern
	nstallation consisting of clay and sandy loam, with a high percent of calcium carbonate, or caliche (URS, 2011).	sediment was also detected	grounds	Willow Flycatcher.
-	cology: (URS, 2011).	above the USEPA RSL.	maintenance	Fish: Desert Pupfish, Gila
missions are to train A-10 and • Th	The block-faulted mountains surrounding the Tucson Basin are composed of Precambrian through Tertiary age granitic, metamorphic,	• Plane Crash Locations 1, 2, 3	workers, utility	(Yaqui) Topminnow, Sonora
OA-10 pilots and to provide vo	volcanic, and consolidated sedimentary rock.	and 4: No PFAS were	workers, and	Chub and Gila chub.
support and forward air • In	n ascending order, the lower basin-fill unit has been divided into the Pantano Formation and the lower and middle Tinaja beds, and the	detected above USEPA RSL	construction	Mammals: Sonoran
control to ground forces up	upper basin fill unit has been divided into the upper Tinaja beds, Fort Lowell Formation, and surficial alluvial deposits, which include stream	or USEPA HA.	workers.	Pronghorn, Lesser Long-
worldwide. The 355th Wing ch	channel deposits.	 Stormwater Outfall Canal: 	 Potential 	Nosed Bat, Jaguar, and
also provides command, <u>Hyd</u>	drogeology: (HGL, 2015) (James M. Montgomery, 1990)	No PFAS were detected	receptors	Ocelot.
	The Pantano Formation is the lowest unit into which wells have been installed in the vicinity of Davis Monthan AFB. The top of this	above USEPA RSL or USEPA	associated with	Reptiles: Northern
countermeasures in support fo	formation occurs at approximately 1,300 feet above mean sea level (amsl) (1,400 feet below ground surface [bgs]).	HA.	current land	Mexican gartersnake and
	The Tinaja beds occurs at approximately 2,400 feet amsl (approximately 300 feet bgs). Most of the wells installed at Davis Monthan AFB are	Primary Release Pathways:	use include	Sonoyta mud turtle.
	completed into the Tinaja Beds.	 Release or application of 	downgradient	Snails: Sonoran talussnail
	The Fort Lowell Formation overlies the Tinaja beds and consists of gravel near the edge of the basin, grading to silt in the center. The Fort	AFFF to the ground at	municipal wells	Plants: Nichol's Turk's Head
=	owell Formation occurs from approximately 2,220 feet to 2,500 feet amsl.	source areas.	owned by the	Cactus, Huachuca Water
	The formations, which comprise the aquifer of the Tucson Basin, generally act, more or less, as a single hydrologic unit.	Infiltration of PFAS deeper	City of Tucson.	Umbel, Kearney's Blue-
	Groundwater enters the Tucson Basin from the south and east through the narrow gap between the Rincon and Santa Rita Mountains near	into soil column over time		Star, Pima Pineapple
•	/ail, Arizona. Groundwater exits the basin to the northwest through the Rillito Narrows between the Tucson and the Tortolita Mountains.	reaching groundwater.		Cactus, Acuna Cactus,
	Aquifer transmissivities in the Tucson Basin range from 1,000 to almost 500,000 gallons per day per foot.	Surface and storm water		Bartam stonecrop,
_ I	Nater levels beneath Davis Monthan AFB are approximately 250 to 350 feet bgs.	infiltration into		Beardless chinch weed, and
	eteorology: (URS, 2011).	groundwater.		Canelo Hills ladies'-tresses.
, ,	A low precipitation rate (10 in per year) and a high evaporation rate (65 in per year) are common to the Davis Monthan AFB area.	Secondary Release Pathways:		
	The annual average temperature is approximately 68 degrees Fahrenheit (°F), with average daily maximum temperature of 81 °F,	AFFF washed into drainage,		
	respectively. The hot season extends from April through October, with an average of 41 days annually with maximum temperatures over	stormwater, and sewer		
Stormwater Outfall Canal 10	100°F.	systems.		

Notes:

AFFF – aqueous film forming foam AFB – Air Force Base FTA – fire training area
HA – Health Advisory
PFAS – per- and polyfluorinated alkyl substances
PFBS - Perfluorobutanesulfonic acid

PFOA - perfluorooctanoic acid PFOS - perfluorooctane sulfonic acid RSL – Regional Screening Level SI – Site Inspection

Table 3.0-2

Groundwater Elevations

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Site Inspection Report, Davis Monthan AFB, Tucson, Arizona

AFFF Release Area	Location ID	Well Depth (ft bgs)	Ground Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Date Measured	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft amsl)
1	MW01001	369.0	2685.803	2686.068	1/29/2018	350.49	2335.58
	MW02001	305.0	2711.604	2711.435	1/29/2018	282.49	2428.95
	ST-35-MW-29	375.0	NA	2632.69	1/29/2018	330.05	2302.64
	ST-35-MW-40	378.0	NA	2651.21	1/29/2018	338.07	2313.14
2	ST-35-MW-42	380.0	2564.027	2564.88	1/29/2018	300.20	2264.68
	ST-35-MW-43	380.0	NA	2561.74	1/29/2018	293.81	2267.93
	ST-35-MW-44	380.0	NA	2624.73	1/29/2018	328.14	2296.59
3	MW03001	321.0	2565.485	2565.369	1/29/2018	302.34	2263.03

Notes:

AFFF - aqueous film forming foam

amsl - above mean sea level

bgs - below ground surface

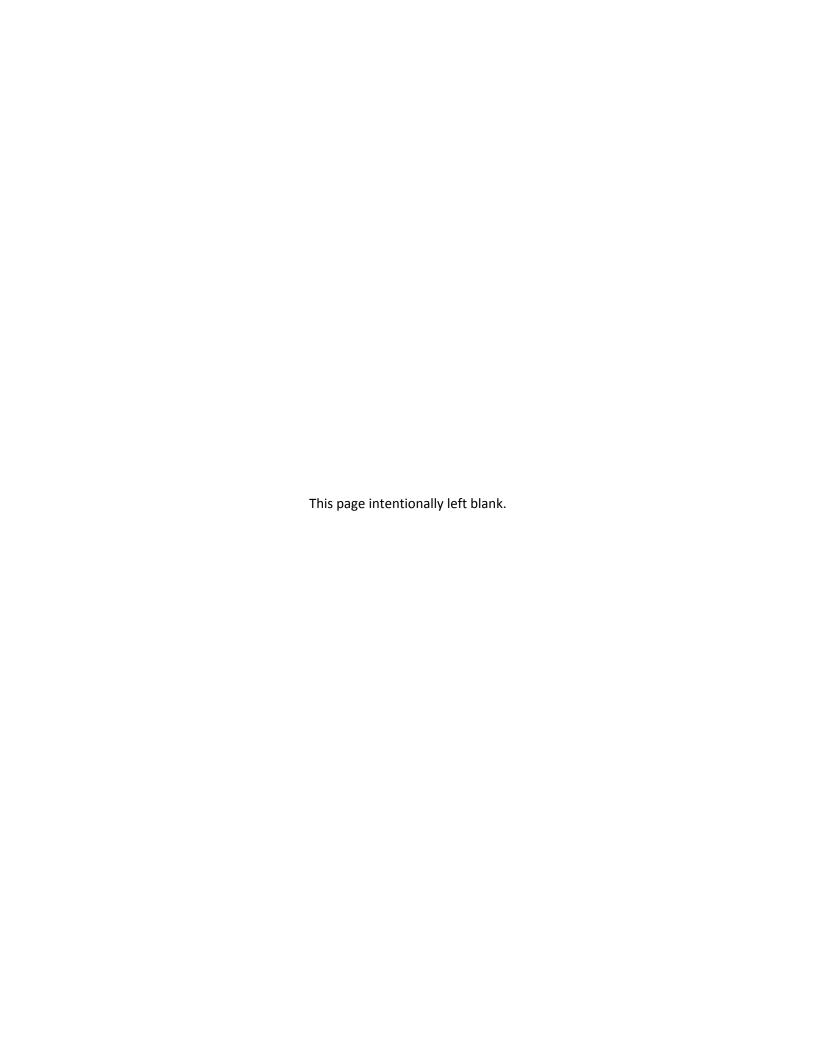
btoc - below top of casing

ID - Identification

ft - feet

NA - not available

TOC - top of casing



APPENDIX A PHOTOGRAPH LOGS

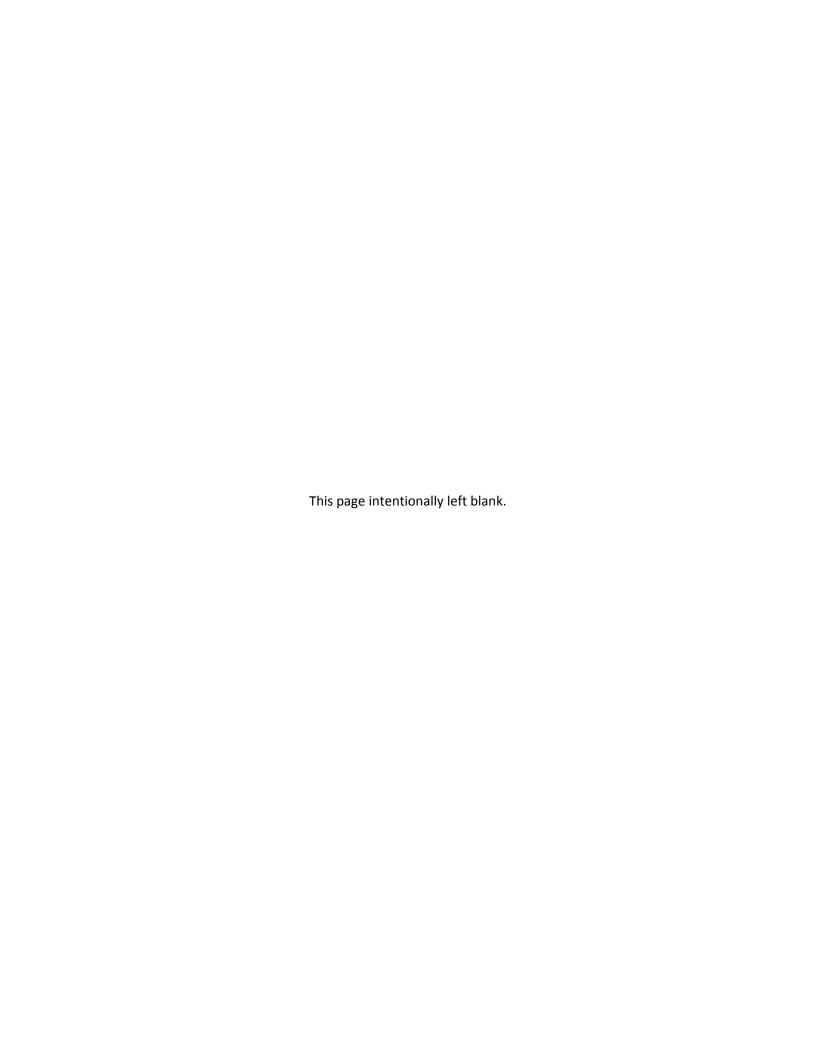






Photo 1:

AFFF Release Area 1FT03 (Former FTA);
West Fire Ring before
MW01001 drilling

Direction of Photo: North



10 October 2017

Photo 2: AFFF Release Area 1-FT03 (Former FTA); South Fire Ring before SB01002 drilling

Direction of Photo: NA





Photo 3:

AFFF Release Area 1-FT03 (Former FTA); East Fire Ring before SB01003 drilling

Direction of Photo: Northeast



16 October 2017

Photo 4:

AFFF Release Area 1-FT03 (Former FTA); East Fire Ring after SB01003 was backfilled.

Direction of Photo: Southeast





Photo 5:

AFFF Release Area 1-FT03 (Former FTA); Surface completion of MW01001

Direction of Photo: North



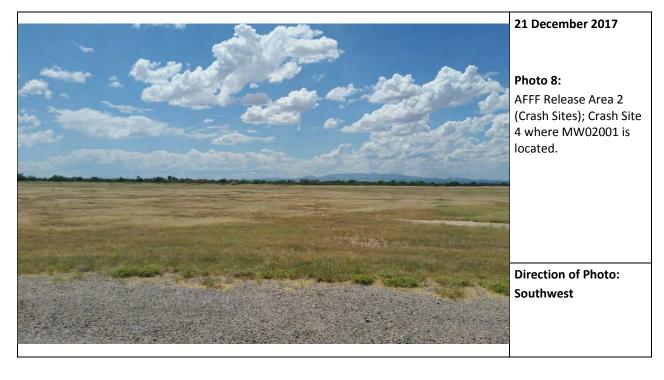
10 July 2017

Photo 6:

AFFF Release Area 1-FT03 (Former FTA); Temporary staging area of equipment and IDW tank 01.











22 December 2017

Photo 9:

AFFF Release Area 2 (Crash Sites); Drilling at MW02001. Drillers are obtaining a water level from inside the drive casing.

Direction of Photo: South



20 December 2017

Photo 10:

AFFF Release Area 2 (Crash Sites); Drilling at MW02001. Drillers are attaching more drill casing.





22 December 2017

Photo 11:

AFFF Release Area 2 (Crash Sites); Drilling at MW02001. Drillers are setting the well casing.

Direction of Photo: Northwest



22 December 2017

Photo 12:

AFFF Release Area 2 (Crash Sites); Drilling at MW02001. Drillers are placing the filter pack.





Photo 13:

AFFF Release Area 3 (Stormwater Outfall Canal); Surface completion of MW03001.

Direction of Photo: Northwest



29 January 2018

Photo 14:

AFFF Release Area 3 (Stormwater Outfall Canal); Collecting water level at MW03001.





Photo 15: AFFF Release Area 2 (Crash Sites); Existing well MW-32 with pump.

Direction of Photo: North



05 January 2017

Photo 16: AFFF Release Area 2 (Crash Sites); Existing

well MW-40 with pump.





Photo 17: AFFF Release Area 2 (Crash Sites); Existing

well MW-43.

Direction of Photo: East



30 August 2017

Photo 18:

AFFF Release Area 2 (Crash Sites); Existing well MW-43 with pump.





Photo 19:

AFFF Release Area 2 (Crash Sites); Sampling of MW-44, an existing well.

Direction of Photo: East



05 January 2018

Photo 20:

AFFF Release Area 2 (Crash Sites); Sampling of MW-44, an existing well along the active runway.





Photo 21:

AFFF Release Area 2 (Crash Sites); Sampling of MW-43, an existing well.

Direction of Photo: Southeast



10 October 2017

Photo 22:

AFFF Release Area 3 (Stormwater Outfall Canal); Former Fire Station No.1 Drainage Outfall where SD03001 was collected.



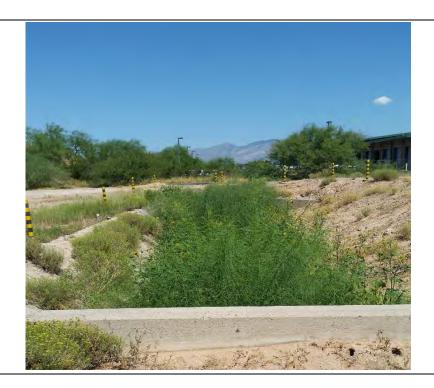


Photo 23:

AFFF Release Area 3 (Stormwater Outfall Canal); Stormwater Outfall Canal where SD03001 was collected

Direction of Photo: North



10 October 2017

Photo 24:

AFFF Release Area 3 (Stormwater Outfall Canal); Stormwater Outfall Canal where SD03002 was collected.





Photo 25:

AFFF Release Area 3 (Stormwater Outfall Canal); Stormwater Outfall Canal where SD03003 was collected in the unlined portion.

Direction of Photo: Southeast

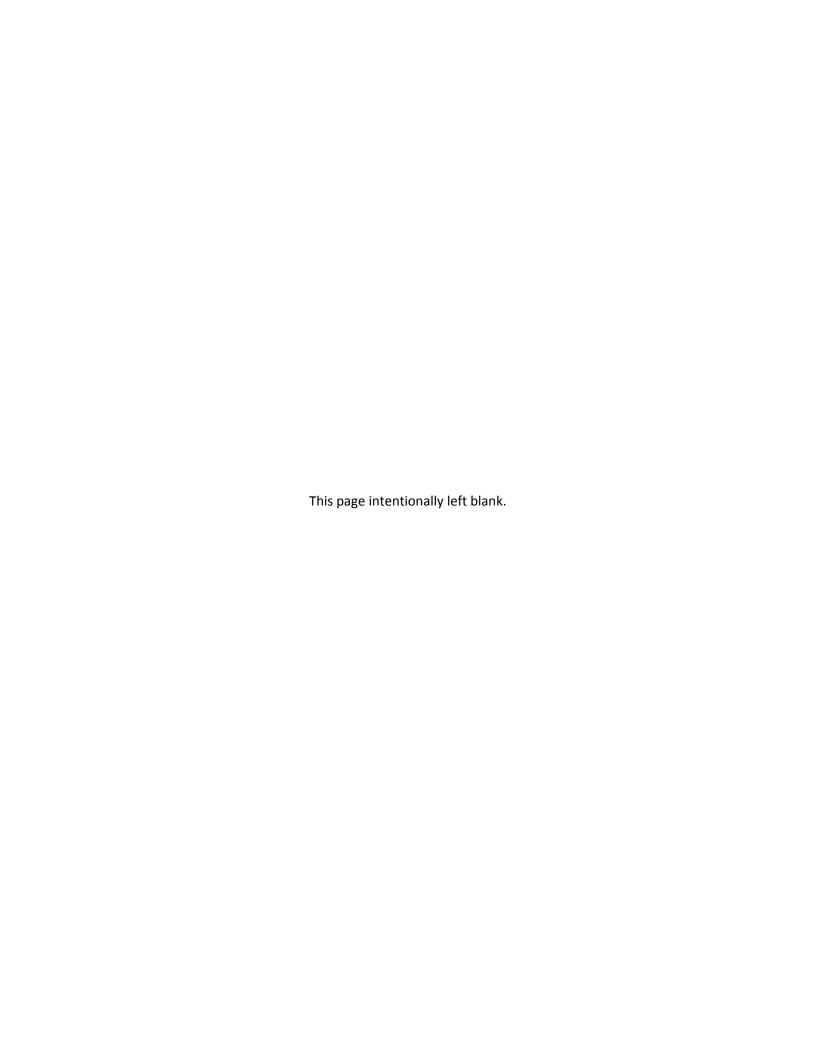


5 January 2018

Photo 26:

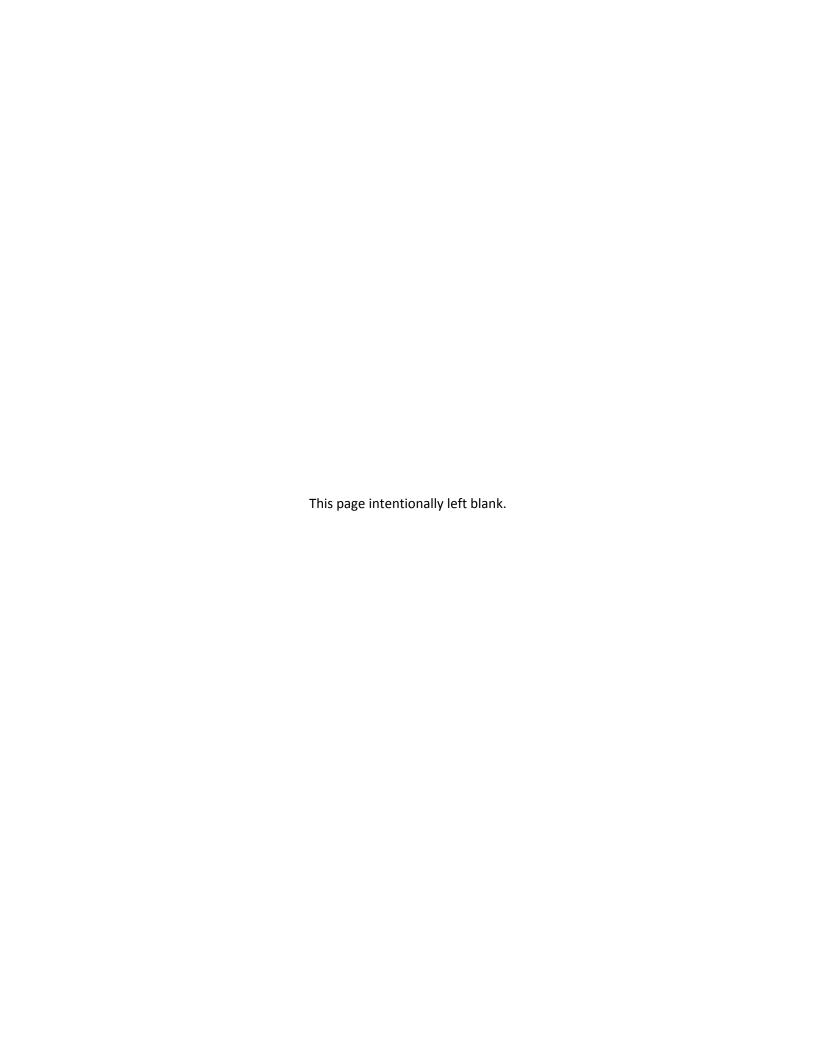
AFFF Release Area 3 (Stormwater Outfall Canal); Stormwater Outfall Canal where SD03004 was collected under the bridge.

Direction of Photo: Southeast



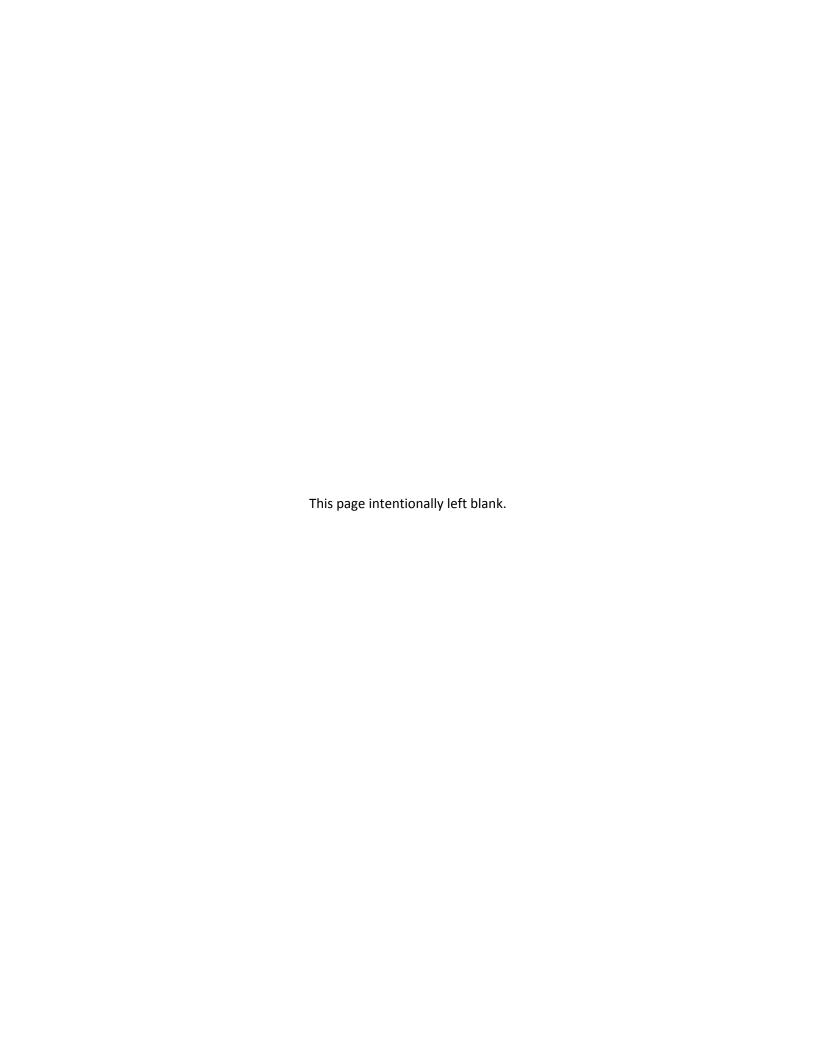
APPENDIX B

FIELD FORMS

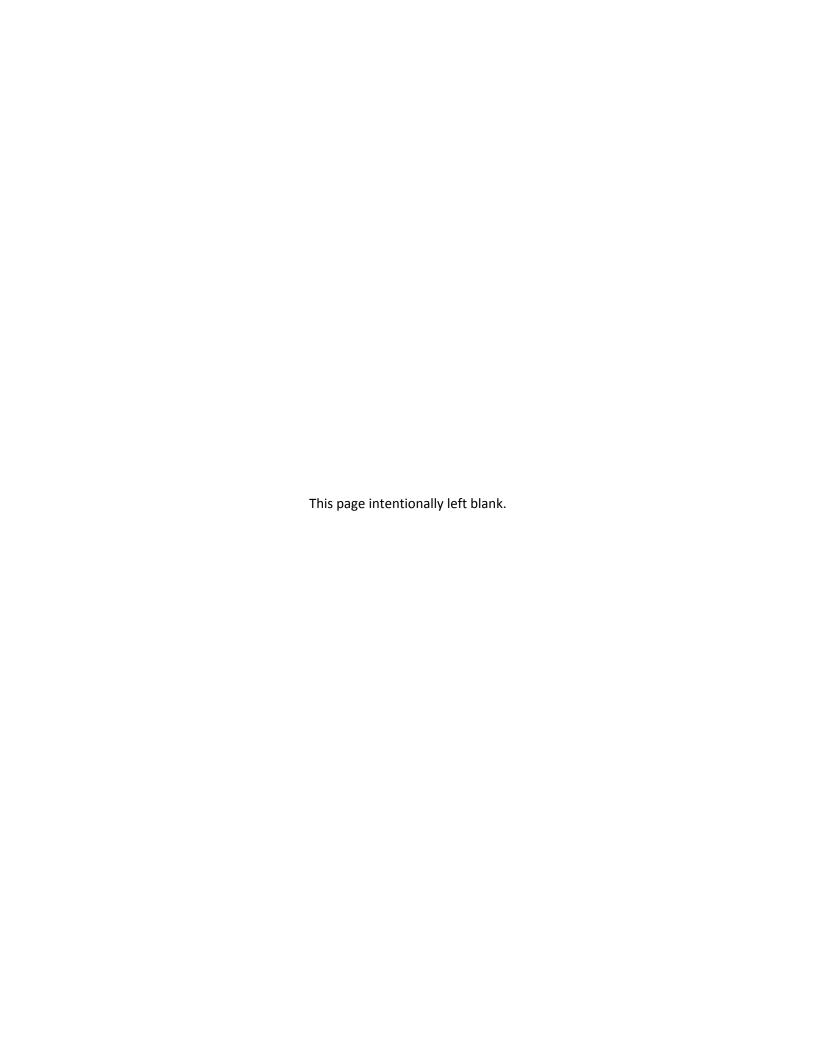


Appendix B Table of Contents

B-1	Field Activity Daily Logs
B-2	Daily PFAS Protocol Checklists
B-3	Tailgate Safety Meeting Reports
B-4	Soil Boring/Monitoring Well Records
B-5	Screened Well Construction Forms
B-6	Well Development Logs
B-7	Water Quality Sampling Instrument Calibration Forms
B-8	Groundwater Sampling Logs
B-9	Sediment Sample Collection Logs



APPENDIX B-1 FIELD ACTIVITY DAILY LOGS





			wheeler
Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	Site wide
Weather:	Clear, Hot	 Date and Time:	10/10/17 18:31
Technician(s):		Kyle Keegan, Audrey Yorke	
Description of Daily	y Activities and Events:		
12:00 Met with Teres 12:30 Drill crew setti 13:00 Chad Cahill at 14:30 Chad and Wa 14:45 Alex off site.	Alex Yiannakakis, Audrey York, Tony Valentine, Lloyd Pesa Sobolewski to see where we are with getting the dig peing up at the fire training area for now. Alex spoke with the nd Walter S. on site to deliver equipment liter off site. to see if our coolers are in. Audrey will monitor setup and	ermits. Drill crew going through inspection. Fire chief. Alex, Audrey and Kyle are looking	at the drill sites.
List of Samples Collected:	N	lone	Technician Signature:
Deviation from Plans:		lone	1/1/7
Visitors on Site:	Alex Yi	annakakis	Technician Name (print):
Important Telephone Calls / Photos Taken:	N	lone	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas 2 Len	ul Q	A/QC Date: 2/23/2018





Contract: FASB03-16-D-0227 Task Order: 0.004				
Installation: DAVIS - Davies Monthan APIB Investigation Area: Site Wilde Date and Time: 10/11/17 17:36 Date and Time: 10/11/17 17:36 Description of Daily Activities and Events: Kye Keepan. Audrey Yorke, Sarah Schneider Sargent, and Alex Yannakakis	Project Name:		Project Number:	775303101.0009
Technician(s): Kyle Keegan, Audrey Yorke, Samartha Sargent, and Alex Yiannakakis Description of Daily Activities and Events: Time Observation/Comment Alex Yiannakakis, Kyle Keegan, Samantha Sargent, Audrey Yorke, Sarah Schneider, Vern Christensen, Tony Valentine, Lloyd Pena and Cody Gabala on site. Vern getting badged. 8045 All personnel at the fire station for the kick off meeting with the based leads (Sam has the full standance list). 8046 MEE off sites, brins set at MW03001. Baker on site with 6,000 gallon vater tank (no containment was ordered. 8047 All personnel at the fire training all the Operations building. Sarah Schneider, New Christensen, Tony Valentine, Lloyd Pena and Cody Gabala on site. Vern getting badged. 8048 All personnel at the fire stating in your and Kyle to escort them in. All other personnel are louring the deal locations. 8049 Cody of the control of the Verland Sarah Schneider, New Yiannakakis and Sam Sargent review Outfall sample locations. 8040 Person stanting at the Operations building. Sarah Schneider, New Yiannakakis and Sam Sargent review Outfall sample locations. 8040 Person Sarahing at the Operations building. Sarah Schneider, New Yiannakakis and Sam Sargent review Outfall sample locations. 8040 Person Sarahing at the Operations building. Sarah Schneider, New Yiannakakis and Sam Sargent review Outfall sample locations. 8040 Person Sarahing at the Operations building. Sarah Schneider, New Yiannakakis and Sam Sargent review Outfall sample locations. 8040 Person Sarahing at the Operations building. Sarah Schneider, New Yiannakakis and Sam Sargent review Outfall sample locations. 8040 Person Sarahing at the Yellow Jacket cree to mark the new location of MW02001 and show whenthour to use the radio. 8050 Person Sarahing at the Yellow Jacket cree to mark the new location of MW02001 and show whenthour to use the radio. 8050 Person Sarahing at the Yellow Jacket cree to mark the new location of MW02001 and and show whenthour to use the radio. 8050 Person Sarahing at the Ye	Contract:	FA8903-16-D-0027	Task Order:	0004
Technician(s): Kryle Keegan, Audrey Yorke, Samantha Sargent, and Alex Yiannakakis Description of Daily Activities and Events: Time Observation/Comment 4 Air Personnel act the fire station for the kick off meeting with the based leads (Sam has the full attendance list). 11:00 MPE on site with two 20 year todioff bins. Audrey and Kyle to escort them in. At other personnel are though the delil locations. 12:00 MPE of all set with two 20 year todioff bins. Audrey and Kyle to escort them in. At other personnel are though the delil locations. 12:00 MPE of all set, bins set at NV000011. Bairor an inst with 0.00 gallon water tank (no contament vas ordered. 12:00 MPE of all set place the fire training lay down. EOD is going to do training and too hazardous to stay in the area. Drill Crew taking Lunch. 12:00 MPE of all set place the capacity of the contament of the personnel are though the capacity of the capacity	Installation:	DAVIS - Davis-Monthan AFB	_	
Description of Daily Activities and Events: Observation/Comment	Weather:	Clear, Hot	Date and Time:	10/11/17 17:36
Time Observation/Comment 9000 Alex Yiannakaida, Kyle Keegan, Samantha Sargent, Audrey Yorke, Sarah Schneider, Vern Christensen, Tony Valentine, Lloyd Pena and Cody Gabala on site. Vern getting badged. 9045 All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list). 1100 MPE off site, bins set at MW03001. Bake on site with 6,000 gallon water tank from containment was ordered. 1200 MPE off site, bins set at MW03001. Bake on site with 6,000 gallon water tank from the fire training lay down. EOD is going to do training and too brazardous to stay in the area, Drill Clew taking Lunch. 1900 Privers training at the Operations building. Sarah Schneider, Alex Yiannakalis and Sam Sargent review Outfall sample locations. 1900 Privers training at the Operations building. Sarah Schneider, Alex Yiannakalis and Sam Sargent review Outfall sample locations. 1900 Privers training at the Operations building. Sarah Schneider, Alex Yiannakalis and Sam Sargent review Outfall sample locations. 1900 All personnel off site. 1900 Privers training at the Operations building. Sarah Schneider, Alex Yiannakalis and Sam Sargent review Outfall sample locations. 1900 All personnel off site. 1900 Privers training at the Operations building. Sarah Schneider at tracking number. Drill crew deconning pipe and equipment. 1900 All personnel off site. 1900 Privers training at the Operation of Samples. 1900 Privers training at the All Private	Technician(s):	Kyle Keegan, Au	Idrey Yorke, Samantha Sargent, and Alex Y	'iannakakis
All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel at the fire station for the kick off meeting with the based leads (Sam has the full attendance list) All personnel off stations are stationary and the fire station for the kick off meeting with the parameter than the fire station of the fire stations of	Description of D	Paily Activities and Events:		
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Out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-of-out-out-of-out-out-out-out-out-out-out-out-out-out	Alex Yianı	nakakis, Kyle Keegan, Samantha Sargent, Audrey Yorke, Sara		entine, Lloyd Pena and Cody Gabala on site. Vern
MPE on site with two 20 yard rolleft files. Audrey and Kyle to escort them in. All other personnel are burning the deill locations. 12:30 Hurrying to drop water tank at the fire training by down. EOD is going to do training and too hazardous to stay in the area. Drill Crew taking Lunch. 13:00 Drivers training at the Operations building. Sarah Schneider, Alax Ylannakakis and Sam Sargent review. Outfall sample locations. 14:00 Rich Sims drove Kyle, Audrey and the Yelbu Azaked revi to mark the new location of MW02001 and show whenhow to use the radio. 15:30 Kyle to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 15:30 All personnel off site. List of Samples Collected: None Technician Signature: None Westation from Plans: Westations on Site: MPE and Baker, Sarah Schneider Technician Name (print): Kyle Keegan	getting ba	- -	1. (Once has the fall attendance list)	
MPE off site, bins set at MW03001. Baker on site with 6,000 gallon water tank (no containment was ordered. Hurrying to drop water tank at the first training by down. EOD is going to do training and too hazardous to stay in the area. Drill Crew taking Lunch. Rich Sims drove Kyle, Audrey and the Yellow Jacket crew to mark the new location of MW02001 and show when/how to use the radio. Rich Sims drove Kyle, Audrey and the Yellow Jacket crew to mark the new location of MW02001 and show when/how to use the radio. All personnel off site. List of Samples Collected: None Technician Signature: Deviation from Plans: MPE and Baker, Sarah Schneider Technician Name (print): MPE and Baker, Sarah Schneider Technician Name (print): Kyle Keegan				II locations
Hurrying to drop valent rank at the fire training lay down. EOD is going to do training and too hazardous to stay in the area. Drill Crew taking Lunch. 13:00 Drivers training at the Operations building. Sarah Schneider, Nex Yiannakakis and Sams Sargent review Outfall sample locations. 13:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 13:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 13:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 14:00 FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 15:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 15:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 15:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 16:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 17:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 18:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 18:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 18:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 18:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 18:00 Kyls to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and				in locations.
14:00 Rich Sims drove Kyle, Audrey and the Yellow Jacket crew to mark the new location of MW02001 and show when/how to use the radio. 15:30 Kyle to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 17:00 All personnel off site. List of Samples Collected: None None None None None None None None None Technician Signature: Wisitors on Site: MPE and Baker, Sarah Schneider Important Telephone Calls / Photos Taken: Kyle Keegan				ne area. Drill Crew taking Lunch.
15:30 Kyle to check again for coolers at FedEx since we did not get a tracking number. Drill crew deconning pipe and equipment. 17:00 All personnel off site. List of Samples Collected: None				
List of Samples Collected: None Peviation from Plans: None None None None None None None Technician Signature: Wisitors on Site: MPE and Baker, Sarah Schneider Technician Name (print): Kyle Keegan				
List of Samples Collected: None Plans: None Wistors on Site: Important Telephone Calls / Photos Taken: None Technician Signature: Technician Name (print): Kyle Keegan	-	-	number. Drill crew deconning pipe and equ	uipment.
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				
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List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				
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List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan	İ			
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan	ĺ			
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List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan	ĺ			
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken: None None None None None None None None Kyle Keegan				Technician Signature
Deviation from Plans: None None Wisitors on Site: MPE and Baker, Sarah Schneider Technician Name (print): Important Telephone Calls / Photos Taken:	List of Samples	N	lana.	rechinician dignature.
Plans: Wisitors on Site: MPE and Baker, Sarah Schneider Technician Name (print): Important Telephone Calls / Photos Taken: Kyle Keegan	Collected:	IN	one	12/11
Plans: Wisitors on Site: MPE and Baker, Sarah Schneider Technician Name (print): Important Telephone Calls / Photos Taken: Kyle Keegan	- · · · · · · · · · · · · · · · · ·			
Visitors on Site: MPE and Baker, Sarah Schneider Technician Name (print): Important Telephone Calls / None Kyle Keegan Photos Taken:		N	lone	/ XY ()
Technician Name (print): Important Telephone Calls / None Kyle Keegan Photos Taken:	1 14.10.			10,0
Important Telephone Calls / None Kyle Keegan Photos Taken:	Visitors on Site:	MPE and Baker	, Sarah Schneider	Technician Name (print):
Telephone Calls / None Kyle Keegan Photos Taken:	Important	·		reclinician waine (printy).
Photos Taken:		; <i>1</i>	lone	Kyle Keegan
QA/QC'd by: Thomas W. Hensel Thomas W. Hensel QA/QC Date: 2/23/2018	Photos Taken:			· -
	QA/QC'd by:	Thomas W. Hensel	nel a	QA/QC Date: 2/23/2018



	COMMAN OF BAILTA	NOTIVITIES		foster wheeler
Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	77:	5303101.0009
Contract:	FA8903-16-D-0027	 Task Order:		0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	Site wide/	AFFF Release Area 03
Weather:	Clear, Hot	Date and Time:	10	0/12/17 17:31
Technician(s):		Kyle Keegan and Audrey Yorke		
Description of Daily	Activities and Events:			
09:30 Tailgate Safety 09:45 Drill crew mov	Audrey Yorke, Tony Valentine, Lloyd Pena and Cody Gal y Meeting and PFAS Protocol Checklist ing equipment to MW03001 drill site. Still do not have pe ey checking status of the existing wells with pumps.			Technician Signature:
List of Samples Collected:		None		ALL.
Deviation from Plans: –		None		1910
Visitors on Site:	Stepha	anie McCary	-	Technician Name (print):
Important Telephone Calls / Photos Taken:		None		Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas 25 4	ensel	QA/QC Date:	2/23/2018



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	AFFF Release Area 03
Weather:	Clear, Hot	Date and Time:	10/13/17 17:40
Technician(s):		Kyle Keegan and Audrey Yorke	
Description of Daily	Activities and Events:		
Time_		Observation/Comment	
	and Audrey Yorke on site	<u>Observation/Johnment</u>	
-	ing to Home Depot for supplies. Kyle to FedEx to pick up	the sample kits. Audrey going to stores to get	buckets and Distilled water.
10:50 Picked up drill	permission from Teresa at the engineer office.		
11:30 Tony Valentine	e, Lloyd Pena, and Cody Gabala		
12:00 Sampled the L	ab distilled water. DAVIS-FB-001		
	PFAS free water from the pipe truck. DAVIS-FB-002. Wa		area
	nt blank on hand auger. DAVIS-EB-001 (for DAVIS03-S		: I
	utilities with a hand auger at MW03001. Surface sample d preparing to drill for conductor casing at MW03001.	DAVISU3-SO-001 taken 0.5-1 π bgs and phys	ical sample 0 to 1 ft bgs (DAVIS03-C-1).
	or conductor casing at MW03001		
	nductor casing to 20 ft bgs at MW03001		
17:00 All personnel of			
I			
			Task misian Cinnatum
List of Samples			Technician Signature:
Collected:	DAVIS-FB-001, DAVIS-FB-002, DAV	/IS-EB-001, DAVIS03-SO-001, DAVIS03-C-1	1. 11
_			
Deviation from		None	
Plans:		Notice	1 11 0
Visitana an Oita		Name	7 0
Visitors on Site:		None	Technician Name (print):
Important			
Telephone Calls /		None	Kyle Keegan
Photos Taken:			
0.1/0.5: : :	-11 2 N 11	0	NOC Data.
QA/QC'd by:	Thomas W. Hensel Thomas 2. The	usel	2/23/2018



				Wilecter
Project Name: Contract: Installation:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
		FA8903-16-D-0027	 Task Order:	0004
		DAVIS - Davis-Monthan AFB	 Investigation Area:	AFFF Release Area 03
Weather:	_	Clear, Hot	Date and Time:	10/14/17 18:49
Technician(s): Kyle Keegan and Audrey Yorke				
		Activities and Events:		
	on or buny		Observation/Comment	
<u>Time</u> 06:30 Ky	do Koogan /	Audrey Yorke, Tony Valentine, Lloyd Pena and Cody Ga		
-		Meeting and PFAS Protocol Checklist	ibala on site	
		e and prepping for drilling at MW03001.		
		Prepping the rig for drilling.		
		nt blank of the split spoon before the 30' sample is take	n. Pressure wash + 4 bucket decon was us	ed before sampling.
		off site to fly home.		, ,
		t MW03001 from 21 ft bgs. Soil will be dumped into Bin	# DW6279 until it is full, then we will switch	bins.
Sp Sp	olit spoon sar	mple taken at MW03001 at 30 ft bgs (DAVIS03-SO-002 170 ft bgs sample.		
14:13 Co	ontinuing to o	Irill from 30 ft bgs at MW03001		
17:34 Dri	illed to 170 f	t bgs at MW03001. Cleaning up site for the day. We will	I sample 170 ft bgs at MW03001 with a spli	spoon.
18:00 All	l personnel o	ff site.		
List of Sar Collected:		DAVIS-EB-00:	2, DAVIS03-SO-002	Technician Signature:
Deviation from Plans: No MS/MSD taken at 30 ft for MW03001. Very little soil recovery at that deviations on Site: None		No MS/MSD taken at 30 ft for MW03001. Very little soil recovery at that depth.		1418
		None	Technician Name (print):	
Important Telephone Photos Ta	e Calls /		None	Kyle Keegan
QA/QC'd	by: T	homas W. Hensel Thomas 25 4	Vensel	QA/QC Date: 2/23/2018



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide Project Number:	775303101.0009	
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	AFFF Release Area 03
Weather:	Clear, Hot	Date and Time:	10/15/17 18:03
Technician(s):		 Kyle Keegan	
Description of Daily	Activities and Events:		
		bservation/Comment	
Time 06:30 Kyle Keegan,	Tony Valentine, Lloyd Pena and Cody Gabala on site.	<u>oservation/Comment</u>	
	y Meeting and PFAS Protocol Checklist.		
_	illing at MW03001		
	econned with pressure washer, then the 4 bucket decon before	re taking the equipment blank. DAVIS-E	B-003
	ken at MW03001 at 170 ft bgs. DAVIS03-SO-003 with MS/M		
08:49 Continue drilling	ng from 170 ft bgs		
12:55 Pulling drill pip	pe to take a split spoon sample at 290 ft bgs.		
	conning the split spoon.		
	ken at 290 ft bgs at MW03001. Soil is dry no water yet.		
	to 300 ft bgs to take another split spoon unless water is hit be		
	ken at MW03001 at 300 ft bgs (DAVIS03-SO-004) (DAVIS03	B-C-2). DAVIS-EB-003 associated with 1	70 and 300 foot samples.
	out and calling it a day. Cleaning up equipment.		
17:30 All personnel	OIT SITE.		
List of Committee			Technician Signature:
List of Samples Collected:	DAVIS-EB-003, DAVIS03-SO-002	, DAVIS03-SO-003, DAVIS03-C-2	1.11
Deviation from Plans:	No	one	1 840
Visitors on Site:	No	one	Technician Name (print):
Important Telephone Calls / Photos Taken:	No.	ne	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas D. Hense	l	QA/QC Date: 2/23/2018



					wheeler
Project	Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0	0009.0003
Contra	ct:	FA8903-16-D-0027		000	4
Installa		DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF Releas	
Weathe		Sunny, 90s	Date and Time:	10/16/17	
	cian(s):		Garrett Tabor		17.00
		y Activities and Events:			
Time	Julion C. 2		Observation/Comment		
	Left Phoenix	·	Observation/Comment		
		than wait for YJD			
09:16		badging office			
10:41	Going throug	h inspection			
11:06	Tailgate				
11:20	Decon & rig s	setup			
12:30		ent blank from hand auger. DAVIS-EB-004			
12:35		ent blank from split spoon. DAVIS-EB-005			
12:40		iger at SB01002			
12:45		at 0-1' DAVIS01-SO-005. Save soils for composite sample	e.		
13:05		nand auger clear , zero-0 ppm isobutylene-100.5 ppm			
13:08 14:05		@ 30' bgs (SB01002): DAVIS01-SO-006			
14:05	Pull rods and				
14:45		iger SB01003			
14:50		@ 0.5 to 1' bgs (SB01003): DAVIS01-SO-007. Save soils	for composite sample		
15:13	Start drilling S				
16:10	Take sample	@ 30' bgs (SB01003): DAVIS01-SO-008			
16:12	Break down	pipe and Decon			
16:45	Demob, pack	up rig & trucks			
17:30	Yellow jacket	crew offsite			
17:52	GT offsite				
				Ted	hnician Signature:
	Samples	DAVIS01-SO-005, DAVIS01-SO-006, DAVIS01-SO	-007 DAVIS01-SO-008 DAVIS-FB-005 DAV		
Collect	ed:	DAVIOUT-00-000, DAVIOUT 00 000, DAVIOUT 00	-007, DAVIOUT-00-000, DAVIO EB 000, DAV	/IO-LD-00 4	7-2-2
					111
	on from	1	None	//	11/1
Plans:				12	
Visitor	s on Site:	Den	nis Heyer	1	
Violes.	on one.	25	ilis Heyer	Ted	:hnician Name (print):
Importa	ant				
Teleph	one Calls /	l de la companya de	None		Garrett Tabor
Photos	Taken:				
QA/QC	c'd by:	Thomas W. Hensel Thomas 2 Hen	ul a	A/QC Date:	2/23/2018



			Wilecter
Project Nam	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	AFFF RELEASE AREA 03
Weather:	Clear, Hot	 Date and Time:	10/16/17 18:58
Technician(s	s):	Kyle Keegan	
Description	of Daily Activities and Events:		
Time	·	Observation/Comment	
	Keegan on site. Calibrate PID (Cal'd good).		
06:31 Tony	Valentine, Lloyd Pena and Cody Gabala on site.		
06:45 Tailga	ate Safety Meeting and PFAS Protocol Checklist.		
07:00 Prep	for drilling at MW03001.		
07:45 Drillin	ng from 300 ft bgs at MW03001.		
08:15 Wet s	soil at about 305 ft bgs at MW03001. Drilling to 330 ft bgs for no	w.	
10:00 Soil E	Boring Crew on site (See Garrett Tabors daily). Kickoff meeting,	HASP AND QPP overview.	
10:30 Helpi	ng SB crew setup at SB01002.		
13:00 Tagg	ed water at 303.11 ft bgs at MW03001. Instructed the drill crew	to build the well screened from 301 to 321 ft bg	s. Bottom of the well will sit 321 ft bgs.
	ping well materials for setting the well at MW03001.		
	depth of the borehole was tagged at 328 ft bgs at MW03001.		
15:01 Begin	building the well at MW03001.		
	ng filter pack at MW03001		
	tole took a lot of sand to fill at MW03001. We will finish filter pac	k in the morning. Cleaning up.	
18:30 All pe	ersonnel off site.		
			Technician Signature:
List of Samp	ples	None	. commonan organization
Collected:		Notic	1.11
Deviation fro	om	None	
Plans:		None	1 07 0
	<u></u>		- / V
Visitors on S	Site:	None	Technician Name (print):
Important			(print).
Telephone C	Calls /	None	Kyle Keegan
Photos Take		-	yio noogan
		1 0	
QA/QC'd by	y: Thomas W. Hensel Thomas 25 4	ensel	QA/QC Date: 2/23/2018
	Sometime w.		



			wheeler
Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 03
Weather:	Clear, Hot	Date and Time:	10/17/17 18:20
Technician(s):	2.53.,	Kyle Keegan	
• •	ly Activities and Events:		
Time		bservation/Comment	
' '	Tony Valentine, Lloyd Pena, Walter Saylors on site		
06:30 Tailgate Safe	ety Meeting and PFAS Protocol Checklist.		
06:45 Prep rig to we	ork area to continue adding the filter pack to MW03001.		
08:30 Filter pack se	et to 298 ft bgs at MW03001. Swabbing the screen		
-	r on site. Sand tagged at 298 still. MPE on site to deliver bin		
_	unch while the 5 ft of chips at hydrating at MW03001. MPE	off site.	
10:45 Begin groutin 12:40 Todd Cahill o	ig MW03001 on site to deliver more 10/20 sand for the next borehole. (Es	corted by Donnie). Continuing to grout MM	V03001
13:10 Todd off site.		corted by Definis). Continuing to grout inv	V03001.
	grout added to MW03001. Cleaning up for the day and loadi	ng trailers with equipment to take to the la	y down yard. Dennis off site.
	ment to the lay down yard		
17:00 All personnel	off site.		
List of Samples Collected:	No	one	Technician Signature:
Deviation from None Plans:			14/0
Visitors on Site:	Dennis	s Heyer	Technician Name (print):
Important Telephone Calls / Photos Taken:	Pictures of tas	ks for photo log	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas & Le	insel	QA/QC Date: 2/23/2018



			wheeler
Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 03
Weather:	Clear, Hot	Date and Time:	10/18/17 18:26
Technician(s):	oledi, riot	Kyle Keegan	10/10/11 10:20
. ,	by Activities and Eventor		
	ly Activities and Events:		
<u>Time</u>	-	bservation/Comment	
	, Tony Valentine, Lloyd Pena and Walter Saylors on site. Cr ety Meeting and PFAS Protocol Checklist	ew getting Walters pass renewed.	
_	pe at the lay down yard.		
=	rout at MW03001.		
	r on site. Loading up equipment at MW03001.		
11:30 Drill crew lun			
12:00 Deconning p	ipe at the lay down yard.		
12:30 Equipment b	lank taken off of hand auger after power washing and decor	nning with the 4 bucket wash. DAVIS-EB-	006 for 0.5'-1' BGS at MW01001
12:45 Shallow soil	sample taken at MW01001 from 0.5 to 1 ft bgs. (DAVIS01-S	SO-001) (DAVIS01-C-1) Began hand clear	ing utilities at MW01001.
_	ent to MW03001.		
	work area and taking more equipment to the lay down.		
17:00 All personnel	off site.		
List of Samples	DAVIS ER OOG DAVISC	01-SO-001, DAVIS01-C-1	Technician Signature:
Collected:	DAVIS-LB-000, DAVISC	71-30-001, DAVI301-0-1	1/1//
Deviation from Plans:	Ne	one	14/7
Visitors on Site:	Denni	s Heyer	Technician Name (print):
Important Telephone Calls / Photos Taken:		sks for photo log	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas & Hen	sel	QA/QC Date: 2/23/2018



				Wiletter
Project Na	ame:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract: Installation:		FA8903-16-D-0027 DAVIS - Davis-Monthan AFB	 Task Order:	0004
			Investigation Area:	AFFF RELEASE AREA 01
Weather:		Clear, Hot	Date and Time:	10/19/17 18:33
Technician(s):			Kyle Keegan	
Description	on of Daily A	ctivities and Events:		
Time			Observation/Comment	
	le Keegan, Toi			
06:45 Ta	ailgate Safety M	leeting and PFAS Protocol Checklist		
		nent to drill conductor casing at MW01001. Crew deco	nned the rig last night and is ready to drill.	
	etting up at MW			
		r at MW01001. Logging soil every 5 ft bgs.		
		ctor casing at MW01001. conductor casing at MW01001.		
		d maintenance done to the drill casing.		
	personnel off			
				Technician Signature:
List of Sar			None	4
Collected:	:			11/1//
Deviation	from			The state of the s
Plans:			None	/ 34 ()
				1010
Visitors o	n Site:	Der	nnis Heyer	Tachnician Name (print)
Important				Technician Name (print):
Telephone Photos Ta	e Calls /	Pictures of	asks for photo log	Kyle Keegan
QA/QC'd	by: The	omas W. Hensel Thomas 2. He	usel	QA/QC Date: 2/23/2018



			wheeler			
Project Name	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number: Task Order:	775303101.0009			
Contract:	FA8903-16-D-0027		0004			
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 01			
Weather:	Clear, Warm	Date and Time:	10/24/17 19:37			
Technician(s):	Kyle Keegan				
Description o	f Daily Activities and Events:					
Time		Observation/Comment				
	n, Tony Valentine, Lloyd Pena, Cody Gabala and Noel Garland on site.					
08:30 Tailga	fety Meeting and PFAS Protocol Checklist					
08:45 Stabbi	ng pipe and prepping the rig to drill at MW01001					
_	drilling from 21 ft bgs.					
	at blank from split spoon taken after pressure washing and 4 bucket decon. DAVIS-EB-007					
11:17	Teresa Sobolewski showing Kyle the landfill to store soil bins at. Crew taking the split spoon sample at 30 ft bgs. Noel will take the sample while Kyle is gone. Crew took lunch after split spoon sample.					
13:00 Sampl	Sampled the 30 ft split spoon at MW01001. (DAVIS01-SO-002)					
16:45 Sampl	e taken at 170 ft bgs with a split spoon at MW01001 (DAVIS01-	SO-003).				
17:00 Cleani	ng up for the day.					
17:15 All per	sonnel off site.					
			1			
List of Sampl	AS		Technician Signature:			
Collected:	DAVIS-EB-007, DAVISO	1-SO-002, DAVIS01-SO-003	1 111			
Deviation fro	m	None				
Plans:	None		1 11			
\rac{1}{2} \cdot \	-	0.1.1.1:	7 0			
Visitors on S	ite: Teresa	Sobolewski	Technician Name (print):			
Important	-					
Telephone Ca	alls / Pictures of to	asks for photo log	Kyle Keegan			
Photos Taker	n:					
0.1/0.07		11 0	0.1/0.0 Parts			
QA/QC'd by	Thomas W. Hensel	fensel	QA/QC Date: 2/23/2018			



			wheeler			
Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009			
Contract:	FA8903-16-D-0027	Task Order: Investigation Area: Date and Time:	0004			
Installation:	DAVIS - Davis-Monthan AFB		AFFF RELEASE AREA 01 10/25/17 19:24			
Weather:	Clear, Warm, Very Windy					
Technician(s):		Kyle Keegan and Noel Garland				
	Daily Activities and Events:					
	Dully Addivided and Events.	Observation/Comment				
Time 06:30 Kyle Ke	egan, Noel Garland, Tony Valentine, Lloyd Pena, Cody Gabala					
-	Safety Meeting and PFAS Protocol Checklist	a on one.				
_	n site to setup the containment on the baker tank.					
	ff site. Begin drilling from 170 ft bgs at MW01001.					
08:45 Alex Yia	Alex Yiannakakis on site and showing Noel the surface sediment and water samples.					
11:30 Equipm	:30 Equipment blank taken on the split spoon for MW01001. DAVIS-EB-008					
12:00 Took sp	lit spoon at 250 ft bgs at MW01001. Dry soil					
12:08 Lunch						
-	lit spoon at 260 ft bgs at MW01001. Dry soil					
_	o 280 ft bgs at MW05001. Still very dry soils					
	oon taken 280 ft bgs at MW01001. Moist clayey sand. Still not					
17:30 Split spoon taken 290 ft bgs at MW01001. Slightly moist clayey sand. Not wet yet. Clean up for the day. 18:00 All personnel off site.						
List of Sample Collected:	S DAVIS-EB-00	98, DAVIS01-SO-004	Technician Signature:			
Deviation from Plans:		due to not bieng in the proximitiy of the water table 0/26/17 Daily log.				
Visitors on Sit	Alex Yiz	nnakakis	Technician Name (print):			
Important Telephone Cal Photos Taken		tasks for photo log	Kyle Keegan			
QA/QC'd by:	Thomas W. Hensel	Yensel QAI	QC Date: 2/23/2018			





Project I	Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	77	5303101.0009
Contract: Installation: Weather:		FA8903-16-D-0027	Task Order:		0004
		DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF F	RELEASE AREA 01
		Clear, Warm	Date and Time:	1/	0/26/17 19:39
Technici			Kyle Keegan and Noel Garland		
		ly Activities and Events:			
	ion or bar		Observation/Comment		
<u>Time</u>	Kulo Koosoo	·	Observation/Comment		
		 Noel Garland, Tony Valentine, Lloyd Pena and Cody Gaba ety Meeting and PFAS Protocol Checklist. 	ala on site.		
	•	ing at MW01001 from 290 ft bgs.			
		g from 290 ft bgs at MW01001.			
	-	olank taken from split spoon at MW01001. DAVIS-EB-008 (r	replaced vesterday's equipment blank)		
		aken from 300 ft bgs at MW01001.	opiacoa yostorady o oquipmont siamity		
11:00	Split spoon t	aken from 310 ft bgs at MW01001. Still dry soil. Pushing a 2 the filter pack.	20 ft section of casing because we are do	wn to our last two 10 ft	sections of casing, which are
12:30 L	Lunch				
13:30	Split spoon t	aken at 330 ft bgs at MW01001. Sl. Moist to dry clayey sand	d.		
15:00	Sediment Sa	ampling DAVIS03-SD-001 (DAVIS-FD-SD-001)			
15:30	Sediment Sa	ampling DAVIS03-SD-002			
15:45	Split spoon a	at 350 ft bgs at MW01001. Dry to SI. Moist clay with sand. D)AVIS01-SO-004		
16:30	Sediment Sa	ampling DAVIS01-SD-001			
17:00 F	Pulling drill re	od at 370 ft bgs at MW01001 to check for water tonight/tom	orrow morning. Soil looked very moist.		
	Cleaning up where to put	for the day. Unofficial tag on water was 353 ft bgs. We will determine the screen.	clean up the pipe and water in the morning	g and after water recov	ers we will tag water and asses
18:00 A	All personne	I off site.			
List of S	amples				Technician Signature:
Collecte		DAVIS-EB-008, DAVIS01-SO-004, DAVIS03-SD-001,	DAVIS03-SD-002, DAVIS-FD-SD-001, D)AVIS01-SD-001	1111
					1414
Deviatio Plans:	n from	1	None		/ XY ()
rialis.					1 0,0
Visitors	on Site:	1	None		Technician Name (print):
Importar	nt ne Calls /	Disturce of te	asks for photo lea		
Photos		Fictures of ta	asks for photo log		Kyle Keegan
		3 6 7	1		
QA/QC	d by:	Thomas W. Hensel	uel	QA/QC Date:	2/23/2018



Projec	t Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide Project Number:	Project Number:	775303101.0009
Contract:		FA8903-16-D-0027	Task Order:	0004
Installa	•	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 01
Weath		Clear, Warm	Date and Time:	10/27/17 17:42
	ician(s):	Sides, Weilli	Kyle Keegan	
			Nyle Neegan	
Descri	ption of Dail	y Activities and Events:		
Time	_	<u>0</u>	bservation/Comment	
06:30		Noel Garland, Tony Valentine, Lloyd Pena and Cody Gabal	a on site.	
06:50		ty Meeting and PFAS Protocol Checklist		
07:00		clean out the casing to get an accurate tag on MW01001's l		
07:45		el to get the Sediment sample off site SD03003. (DAVIS03-S	D-003) Crew tripping in pipe for clean ou	t.
09:30	-	d at MW01001 at 351.74 ft bgs.	COLID IDW DINION (Control to the control	
09:45	well materials	g the IDW buckets from MW03001 and MW01001.(DAVIS-S	SOLID IDW-BINOT) (See tracker for bin h	umbers and their associated wells). Crew is prepping
10:00	DAVIS-SOLII			
10:15	DAVIS-SOLII	D IDW-BIN03		
10:30	DAVIS-SOLII	D IDW-BIN04		
11:30	Setting the w	ell screened from 349 ft to 369 ft bgs at MW01001.		
13:30	Adding the file	ter pack at MW01001.		
15:00	Swabbing the	e screen at MW01001.		
15:26	Filter pack st	ayed at 346 ft bgs at MW01001.		
15:45		nite chips to 341 ft bgs at MW01001		
16:00	Hydrated the are set up.	chips. Cleaning up, crew does not want to do anything else	today despite my efforts to get them to w	ork on the pad at MW03001 or start grout since they
16:45	All personnel	off site		
i				
				Technician Signature:
l ist of	Samples	DAVIEGO ED 003 DAVIE COLIDID	W DINIO1 DAVIS SOLID IDW DINIO2	· commonant organization
Collec			W-BIN01, DAVIS-SOLID IDW-BIN02, , DAVIS-SOLID IDW-BIN04	1.111
			,	/// ///
	,			
	ion from	N	one	1 19 0
Plans:				/ V.
Visitor	s on Site:	N	one	
VISILOI	3 OH OILC.			Technician Name (print):
Import	ant			
Teleph	one Calls /	Pictures of tas	ks for photo log	Kyle Keegan
Photos	s Taken:			
		11 20 11	0	04/00 D
QA/Q	C'd by:	Thomas W. Hensel Thomas & Spen	ul	QA/QC Date: 2/23/2018



			Wileelei
Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027 DAVIS - Davis-Monthan AFB	Task Order:	0004
Installation:		Investigation Area:	AFFF RELEASE AREA 01 & 03
Weather:	Clear, Warm	Date and Time:	10/28/17 18:10
Technician(s):		Kyle Keegan	
Description of Dail	ly Activities and Events:		
Time		Observation/Comment	
	and Noel Garland on site.		
06:50 Tony Valentin	ne, Lloyd Pena and Cody Gabala on site		
_	ety Meeting and PFAS Protocol Checklist		
07:15 Tony doing d 08:00 Begin grouting	lailies while Lloyd and Cody check the rig for maintenance ing MW01001.	needed.	
	ut in up to about 100 ft bgs at MW01001		
10:39 Heading to M	1W03001 to dig out the pad and pump the bins		
	tender to cut the conductor at MW03001		
	MW03001. Water is pumped from the bins near MW03001.		
14:00 Lunch	rout at MW01001.		
	f grout added. We will add cement in the morning. Cleaning	מונים	
17:30 All personnel		9 4 P	
List of Samples Collected:		None	Technician Signature:
Deviation from Plans: Visitors on Site:		None	/ 840
1.5.0.0 511 6110.			Technician Name (print):
Important Telephone Calls / Photos Taken:	Pictures of t	asks for photo log	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas D. Hen	ul	QA/QC Date: 2/23/2018



					wheeler
Project Na	ame:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	7753	03101.0009
Contract:		FA8903-16-D-0027	 Task Order:		0004
Installatio	n:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RE	LEASE AREA 01
Weather:		Clear, Warm	Date and Time:	10/3	29/17 18:02
Technicia	n(s):		Kyle Keegan		
Descriptio	on of Daily Activit	ies and Events:			
Time	•		Observation/Comment		
	le Keegan on site				
07:15 To	ny Valentine, Lloyd F	Pena and Cody Gabala on site.			
07:20 Tai	ilgate Safety Meeting	g and PFAS Protocol Checklist			
	=	01001 from 20 ft bgs.			
-		03001 at 302.91 ft btoc. TOC is 0.5 ft bgs.			
		V01001. Crew packing equipment up and deconni	ing.		
	-	ad at MW01001. TOC 0.5 ft bgs.	to decomposed load on times out for transpose	t They will be beek no	indically the payt favordays to
	ve equipment of site	1001. Kyle off site back to phoenix. Crew staying t .	to decorrand load equipment for transpor	t. They will be back per	louically the flext lew days to
					Tarkeisian Olympian
List of Sar Collected:		N	ione		Technician Signature:
Deviation Plans:	from	N	one		415
Visitors or	n Site:	N	ione	}	Technician Name (print):
Important Telephone Photos Ta	e Calls /	Pictures of tas	sks for photo log		Kyle Keegan
QA/QC'd	by: Thomas	W. Hensel Thomas 2 Jens	ul	QA/QC Date:	2/23/2018





Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 02
Weather:	Cloudy-some rain	Date and Time:	12/18/2017 8:00
Technician(s):		Keegan, Audrey Yorke, Samantha Sarger	
	y Activities and Events:		<u> </u>
-		Observation (Commont	
Time 7:45 On site. Den		Observation/Comment	
	t on site. Checking them in for passes. John. M met at fi	iret date	
	t Fire Safety services. Went to staging area with Eric from		s in fire training area.
	se operations to meet with Mr. Sims. Driver's training refr		
	low Jacket 1. Announce our presence when entering and		
11:00 Cleared the a	area for staging with Sims and John .M.		
11:05 The location	marked on the map is different then the GPS location. W	e had to confirm with all involved parties to	gain clearance for drilling.
11:10 Talking with [Doyle and Sims to determine any issues with locations.		
12:00 Starting to me	ob to staging area.		
12:05 We have to v	vait for confirmation and we can begin tomorrow. Called S	Sarah S. to notify her of full situation.	
16:00 Sam Sargent			
	lled runway area		
18:00 All personnel	off site.		
List of Samples Collected:	ı	None	Technician Signature:
Deviation from Plans:	None		## ## M
Visitors on Site:	Den	nis Heyer	Technician Name (print):
Important Telephone Calls / Photos Taken:	Notifying Sa	arah S. of issues	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel	of Hensel	QA/QC Date: 1/3/2018



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 02
Weather:	Clear-Warm	Date and Time:	12/19/17 19:44
Technician(s):		Kyle Keegan, Audrey Yorke	
Description of	Daily Activities and Events:		
08:00 Tony Va 08:10 Tailgate 08:15 Sam Sar 08:30 Waiting of the same of the sa	egan and Audrey Yorke on site lentine, Lloyd Pena, Cody Gabala and Dennis Heyer on site. Safety Meeting and PFAS Protocol Checklist rgent at laydown area-signed Tailgate. Crew is breaking down to on confirmation of the location of MW02001 by the Airforce. ion granted to drill at previously marked spot by Kyle and Audre	ey in October. Location already cleared for u 19) the tower. m 0.5' to 1' bgs (DAVIS02-SO-001) nd supplies. Tony and Audrey shuffling truck	tilities and under all permits. Crew is deconning rig
List of Samples Collected:	DAVIS-EB-009	9, DAVIS02-SO-001	Technician Signature:
Deviation from Plans:		None	
Visitors on Site	Deni	nis Heyer	Technician Name (print):
Important Telephone Call Photos Taken:	Pictures of ta	asks for photo log	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel	Henrel	QA/QC Date: 1/3/2018



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 02
Weather:	Clear, Warm	Date and Time:	12/20/17 19:12
Technician(s):		Kyle Keegan, Audrey Yorke	
Description of Da	illy Activities and Events:		
Time		Observation/Comment	
	n, Audrey Yorke, Tony Valentine, Lloyd Pena and Cody Gal		
07:00 All personne	el meeting at the lay down area		
	fety Meeting and PFAS Protocol Checklist.		
	g and equipment to drill at MW02001		
08:30 Dennis Hey			
	the casing hammer's chain. casing hammer and hoses to drill at MW02001.		
	ng at MW02001. Soil disposed of in soil bin #5372 at the lay	down yard.	
12:08 Drill crew tal		7.	
	blank taken at MW02001 for 30 ft split spoon sample (DAVI	IS-EB-010)	
13:20 Split spoon	taken at 30 ft at MW02001. (DAVIS02-SO-002)		
	to clean up work area for the night. Drilled to 130 ft bgs. De	ennis off site.	
	ore pipe and prepping for tomorrow at the lay down area.		
18:00 All personne	el off site		
			Technician Signature:
List of Samples	DAVIS ED 01	0, DAVIS02-SO-002	reomnoidi Oignata. O.
Collected:	DAVIS-ED-011	0, DAVISU2-30-002	1 1 11
Deviation from		None	
Plans:			1 07 0
Visitors on Site:	Der	nnis Heyer	7
VISILOIS OIL OILC.			Technician Name (print):
Important			
Telephone Calls /	Pictures of t	tasks for photo log	Kyle Keegan
Photos Taken:			
QA/QC'd bv:	Thomas W. Hensel	25 Stensel	QA/QC Date: 1/3/2018



Project Name:	Site Inspection of AFFF Release Areas	Project Number:	775303101.0009.0300
Project Name.	Environmental Programs Worldwide	Froject Number.	773303101.0009.0300
Contract:	FA8903-16-D-0027	Task Order:	0004
nstallation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 02
Veather:	Clear, Warm	Date and Time:	12/21/17 19:24
Technician(s):		Kyle Keegan, Audrey Yorke	
Time 06:30 Kyle Keegan 07:00 All personne 07:10 Tailgate Safe 07:30 Permission g 08:13 Dennis Heye 09:00 Dennis off si 09:05 Begin drilling 09:15 Equipment b 10:50 Split spoon t 11:20 Mr. Sims sto 11:50 Crew taking 12:40 Continue dril 13:30 Rick Hoyt on 14:45 Richard Sim 15:20 SB02004 0-7 15:30 SB02003 0-1 15:30 SB02002 0-1 14:00 Cleaning up	a, Audrey Yorke, Tony Valentine, Lloyd Pena, Cody Gabala I at the lay down yard bety Meeting and PFAS Protocol Checklist granted from the tower to enter work area at MW02001. For on site, Repairs to hammers chain again the grant at MW02001 from 130 ft bgs. Iank taken off the split spoon for sampling at MW02001. (Laken at 170 ft bgs at MW02001 (DAVIS02-SO-003) pped by to just update us about the planes flying close, the Lunch	UKE-EB-011) eir concerns and ours. Setup an escort from h	
List of Samples Collected: Deviation from Plans: Visitors on Site:		02-SO-005, DAVIS02-SO-006, DAVIS02-SO- None eyer, Rick Hout	007 Technician Signature:
Important Telephone Calls / Photos Taken:		asks for photo log	Technician Name (print): Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas 2.	Yensel 6	QA/QC Date: 1/3/2018



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009.0300
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	AFFF RELEASE AREA 02
Weather:	Clear, Warm	Date and Time:	12/22/17 19:13
Technician(s):		Kyle Keegan, Audrey Yorke	
Description of	Daily Activities and Events:		
		Observation/Comment	
Time 06:45 Kyle Ke	و egan, Audrey Yorke, Tony Valentine, Lloyd Pena and Cody Gaba		
	onnel at the lay down	and on once, onceding in with a minde epo.	
	Safety Meeting and PFAS Protocol Checklist		
_	equipment to MW02001 after getting permission from the tower t	to proceed.	
07:40 Preppin	g rig for drilling at MW02001. The cold rig is taking a bit to warm u	up.	
08:30 Blowing	air on the hole at MW02001. Water coming out. Blew for 5 min a	and waiting 10 min for water to recover.	
08:46 Blew air	on MW02001 again and still producing good water. Cleaning out	t the pipe and water in case we are deep en	ough.
	pipe at MW02001.		
•	water recover. Crew threading well casing together. Water tagged	d at ~287 ft bgs at MW02001	
	evel still holding at ~287 ft bgs at MW02001		
12:10 Lunch	- to be 251 the conflict MANOCOOM account from 005 to 005 ft because		
	g to build the well at MW02001 screened from 285 to 305 ft bgs.		
_	the well at MW02001 filter pack to MW02001		
•	ng Filter Pack		
	bentonite seal		
•	onnel off site		
			Technician Signature:
List of Sample	s	None	
Collected:			1. 11
Deviation from Plans:	N	None	·/\(\lambda\)
rialis.			
Visitors on Sit	e:	None	,
			Technician Name (print):
Important			
Telephone Cal		sks for photo log	Kyle Keegan
Photos Taken:			
QA/QC'd bv:	Thomas W. Hensel	Mennel	QA/QC Date: 1/3/2018



Project Name:	Site Inspection of AFFF Release Are Environmental Programs Worldwid		775303101.0009.0300
Contract:	FA8903-16-D-0027	Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 02
Weather:	Clear, Warm	 Date and Time:	12/23/17 20:26
Technician(s):		Kyle Keegan, Audrey Yorke	
Description of [Daily Activities and Events:		
Time		Observation/Comment	
·	gan, Tony Valentine, Lloyd Pena and Cody Gabala o		
	nnel at the lay down area	3	
07:10 Tailgate S	Safety Meeting and PFAS Protocol Checklist		
08:00 Moving to	MW02001 after permission granted from the tower	to enter the area.	
08:10 Setting up	to grout at MW02001.		
09:10 Grouting	MW02001		
	rout up to 20 ft but may fall at MW02001.		
_	up equipment while grout settles at MW02001.		
	off grout at MW02001. Added 8 bags of bentonite ch		
•	up and heading to the laydown yard with the rig and	equipment. We left the casing puller blocking t	he well with lights on it. Tower was informed.
	off site. Kyle to base Ops. s wouldn't accept responsibility for the radio. John M	aisch an his way to moet Kylo at the Civil Engir	pooring Building in about 30 minutes
	nded off to John. Kyle off site heading back to Phoe		leering building in about 30 minutes.
List of Samples Collected:		None	Technician Signature:
Deviation from Plans:		None	(H) (S)
Visitors on Site		None	Technician Name (print):
Important Telephone Calls Photos Taken:	s / Pi	ictures of tasks for photo log	Kyle Keegan
QA/QC'd by:	Thomas W. Hensel	ras S. Genrel	QA/QC Date: 1/3/2018



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	 Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 01 and 02
Weather:	Clear, Warm	 Date and Time:	01/02/18 17:07
Technician(s):	-	Kyle Keegan, Samantha Sargent	
Description of Dai	ly Activities and Events:		
Time		Observation/Comment	
09:20 Was able to 10:00 Pump rig de 10:15 Tailgate mer 10:39 Setting up at 10:52 DTW=351.0 11:00 Unable to ge 11:10 Begin swabbt 11:43 Begin bailing 12:38 Bailed 55 ga 13:00 Decon pump 13:06 Began deplot 13:55 Pump on, (to 14:25 Adjusted to 15:13 Finished dev 15:27 Audrey and 15:30 Pump crew of	8' btoc et a hold of Mr. Sims to get survey team onto the runway a bing screen of MW01001 and took field blank from pump d allons and started setting pump. be and took equipment blank. (DAVIS-EB-012) bying pump in well. betalizer: 2896.56)~1.6 gpm -2 gpm since there is minimal drawdown velopment and packed up. Bryan on site off site brked on cementing MW02001 and deconning.	area. We will have to reschedule.	
List of Samples Collected: Deviation from Plans: Visitors on Site: Important Telephone Calls / Photos Taken:	Audrey an	None Ind Bryan (AmecFW) If tasks for photo log	Technician Signature: Technician Name (print): Kyle Keegan
QA/QC'd by:	Thomas W. Hensel Thomas 2	Gensel	QA/QC Date: 1/5/2018



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009		
Contract:	FA8903-16-D-0027	 Task Order:	0004		
Installation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	AFFF RELEASE AREA 01, 02, and 03		
Weather:	Clear, Warm, high in 70°s F	Date and Time:	01/03/18 17:00		
Technician(s):		 ı, Audrey Yorke, Samantha Sargent, Brya	an Hansen		
Description of Dai	ily Activities and Events:				
•		Observation/Comment			
Time 06:45 Kyle on site	and stopped at base operations.	observation/Comment			
•	mp crew at MW01001.				
07:35 Pump on (to	talizer: 602909) at MW01001 ~2 gpm.				
8:10 DAVIS01-G	W-001 collected				
	stalizer: 0029160) at MW01001.				
	opped by and Drivers training will be in an hour. He will put a	note in place for tomorrow for developme	ent of MW02001.		
•	well at MW01001. p tank, and fill water.				
	ing up materials in lay down area.				
	ing for pump crew with Mr. Sims; Rick from Yellow jacket on	site (to conduct YJD health and safety au	udit).		
11:33 Set up at MV	W03001 (DTW: 302.08' btoc).				
11:35 Begin swabb	bing (screen: 301'-321').				
	: 55 gallons bailed.				
	ling and started setting pump. Collect DAVIS-EB-013 (pump)).			
13:08 Sam Sarger 13:33 Pump is set	at MW03001.				
	at MW03001. (pump on)				
	nt purge complete at MW03001. Teams plans to collect samp	ole first thing tomorrow morning.			
14:55 Yellow Jack	velopment team offsite. Audrey, Bryan and Rick mobilize to staging area near ILS Critical area to oversee Yellow Jacket drilling team.				
16:55 Yellow Jack	et drilling crew is packing up equipment. AmecFW and Rick	offsite.			
			Technician Signature:		
List of Samples Collected:	DAVIS01-GW-0	01, DAVIS-EB-013	7.40 .207.		
Conected.			11/1/		
Deviation from					
Plans:	N	lone	1 14 ()		
			1 0		
Visitors on Site:	Richa	ard Hoyt	Technician Name (print):		
Important					
Telephone Calls /	Pictures of tas	sks for photo log	Kyle Keegan		
Photos Taken:					
QA/QC'd by:	Thomas W. Hensel	Spensel	QA/QC Date: 1/5/2018		



Project Name: Contract: Installation: Weather:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009	
		FA8903-16-D-0027	Task Order:	0004	
		DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF RELEASE AREA 03 and 02	
		Clear, Warm, high 70s	Date and Time:	01/04/18 17:31	
Techni	cian(s):	Ку	vle Keegan, Audrey Yorke, Bryan Hansen		
Descri	ption of Dai	ily Activities and Events:			
Time	•		Observation/Comment		
,		nd Yellow Jacket teams onsite.			
07:15		daily health and safety meeting and calibrates equipment. Y	ellow Jacket drilling team mobilizes to sta	ging area adjacent to ILS to continue packing up drilling	
07:35	Yellow Jacke	et development team begins purge at MW03001.			
08:20	Collect groun	ndwater sample DAVIS03-GW-001.			
08:24	YJD begins	pulling pump.			
09:11	Pump has be	een removed from MW03001. Team mobilizes to staging are	ea to dump purge water and fill water tank		
09:23	Team check	s in at base Ops.			
09:33	Yellow Jacke	et development team dumps purge water, fills water tank and	d decons casing.		
10:10	Team arrives	s at existing well MW-42. Yellow Jacket connects existing pu	ump wiring to truck to begin purge. The pu	mp works, team sets up water quality equipment.	
11:15	Team collect	ts GW sample DAVIS02-GW-002.			
11:38		nt team mobilizes to staging area adjacent to ILS to prepare			
12:42		s ILS Critical area to begin development activities at MW020	01.		
13:19		et begins swabbing/bailing.			
14:22		ailing complete.			
14:25		ted (DAVIS-EB-014) from bottom of pump.			
14:29		ump into MW02001.			
15:20		at MW02001.	1.004		
15:51		t MW02001. The team will return tomorrow morning to collect	ct Gvv sample.		
16:15	YJD offsite.	avec II S Critical area. Team mobilizes to visinity of existing	well MW 42 to locate well		
16:38 17:26		aves ILS Critical area. Team mobilizes to vicinity of existing blue to locate MW-43.	well MVV-43 to locate well.		
17:30	AmecFW off				
17.00	7 111001 11 011				
				Technician Signature:	
List of	Samples	DAVIS03-GW-001 DAVIS	S02-GW-002, DAVIS-EB-014		
Collect	ted:	5,11,555 61, 57,11,	302 311 302, 2711 3 2 3 1 1	1 1	
Deviati	ion from	N	lone	104//	
				1 1/	
Visitors on Site: None					
Technician Na					
Important Telephone Calls / Pictures of tasks for photo log Photos Taken:				Audrey Yorke	
QA/Q0	C'd by:	Thomas W. Hensel Thomas 2.	Spensel	QA/QC Date: 1/5/2018	



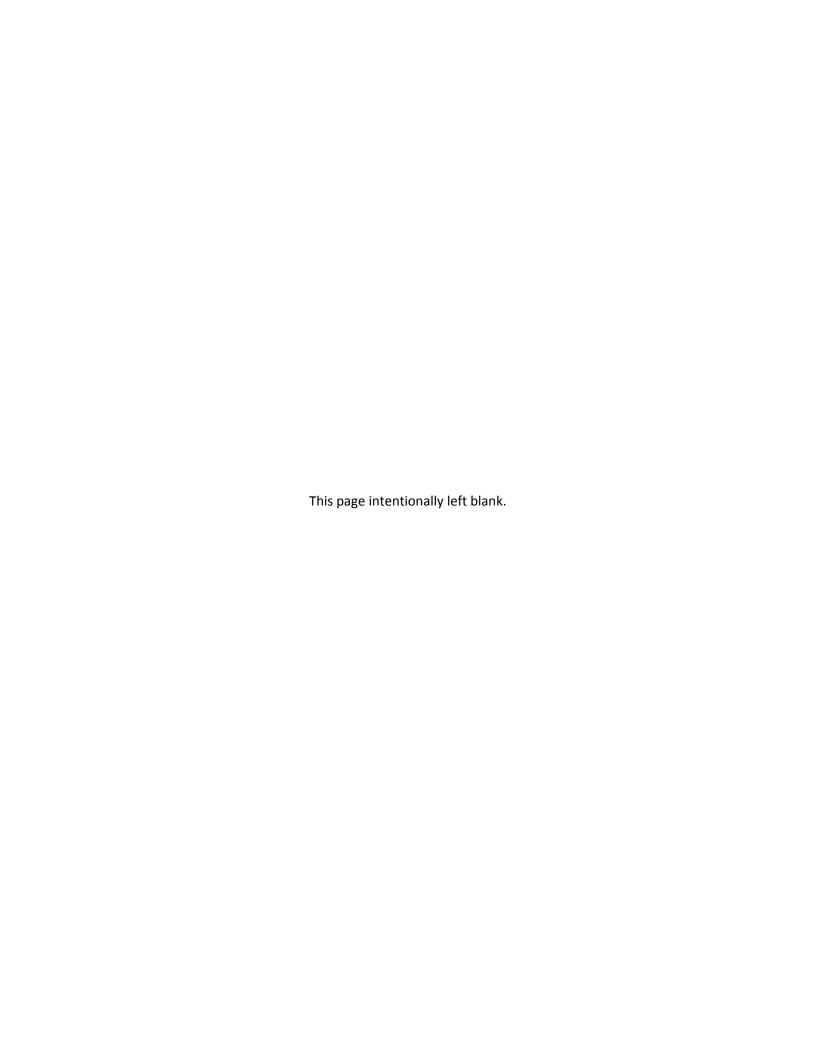
Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contract:	FA8903-16-D-0027	Task Order:	0004
Installation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	AFFF RELEASE AREA 02
Weather:	Clear, Warm, high 70s	Date and Time:	01/05/18 17:00
Technician(s):		le Keegan, Audrey Yorke, Bryan Hansen	
. ,	Daily Activities and Events:	- · · · · · · · · · · · · · · · · · · ·	
-	·		
<u>Time</u>		Observation/Comment	
	/ and Yellow Jacket onsite at staging area adjacent to ILS Critic		
	lds tailgate health and safety meeting and calibrates equipmen	τ.	
	obilizes to MW02001 to set up for sampling. mping at MW02001.		
	W sample DAVIS02-GW-001.		
	acket development crew begins pulling pump from MW02001.		
	obilizes to FTA to dump purge water.		
	ters infield to set up at existing well MW-40. Kyle K. mobilizes to	o collect sediment sample at SD/SW03004.	
	rge at MW-40.		
• .	ample DAVIS02-GW-004 at MW-40.		
12:00 DAVIS02			
	obilizes to existing well MW-44.		
12:22 Begin pu	rge at MW-44.		
13:25 Collect G	W sample DAVIS02-GW-006 at MW-44.		
10:30 Kyle Kee	gan collects sediment sample DAVIS03-SD-004.		
13:45 Team mo	obilizes to FTA to dump purge water.		
14:15 Mobilize	to MW-43.		
14:48 Begin pu	rge at MW-43.		
15:35 Collect G	W sample DAVIS02-GW-003 at MW-43.		
	s finished packing equipment and leaves site. A. Yorke brings i	radio back to John Maisch and checks the tea	am out at base Ops.
16:55 A. Yorke	leaves base.		
			Technician Signature:
List of Samples	DAY/OOO OW OOA DAY/OOO OW OOA DAY/OOO OW	200 DAVIGOO OW 000 DAVIGOO OD 004 D	
Collected:	DAVIS02-GW-001, DAVIS02-GW-004, DAVIS02-GW-0	J06, DAVIS02-GW-003, DAVIS03-SD-004, DA	AVIS02-C-1
Deviation from	Added additional sediment sampling, replace	ed MW-40 for MW-28, and MW-44 for MW-3	5
Plans:	per Sarah	S. instruction.	
Visitors on Site	: N	one	Technician Name (print):
Important			i commondin Hamo (print).
Important Telephone Call	S / Pictures of tas	sks for photo log	Audrey Yorke
Photos Taken:	C, Tiotales of tax	side io. prioto log	Addicy Tolko
	3	0	
QA/QC'd by:	Thomas W. Hensel Thomas 2.	Gensel QA	/QC Date: 1/10/2018



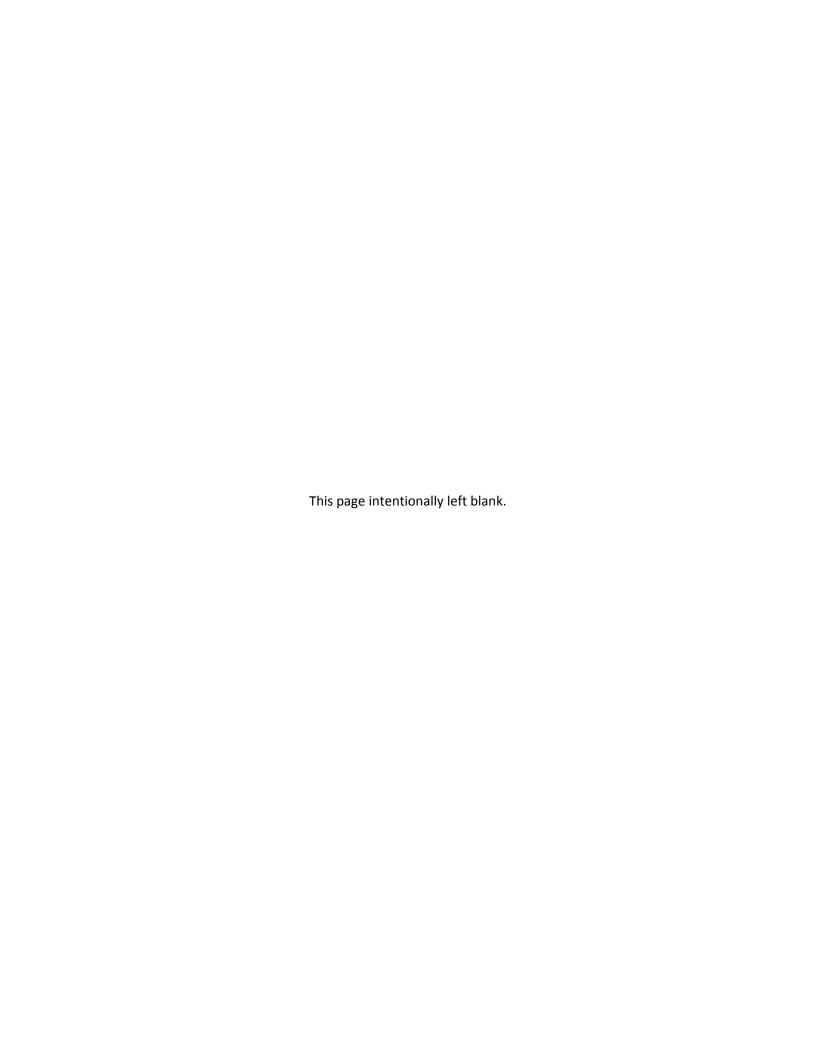
				Wilcelei
Project l	Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009
Contrac		FA8903-16-D-0027	 Task Order:	0004
Installat		DAVIS - Davis-Monthan AFB	Investigation Area:	AFFF Release Area 02
Weather		Clear, high 70s	Date and Time:	01/06/18 11:25
Technic			 Irey Yorke, Bryan Hansen, Kyle Keegan	
	• • • • • • • • • • • • • • • • • • • •	ctivities and Events:	,,,,,,,,,,,,,,,,,,	
	non or bany A		h	
Time	Audrov V. mooto		bservation/Comment	
		Yellow Jacket development crew at base Ops to check Hansen at MW03001 to hold daily tailgate health and sat		
-		existing well MW-32 and calibrates equipment. Yellow J		ng is a 3-wire connection which requires a above-
07:20	ground control bo	ox. The team is unable to sample this well.		
		earah Schneider to discuss sampling options. The team nection as MW-32.	checks other existing monitoring wells in the	e area (including MW-50) but all pumps have the
		cks up equipment and heads to base Ops to check out	and to the FTA staging area to dump purge	water. Yellow Jacket offsite.
	-	ite to pick up samples and equipment.		
	Kyle K. Offsite. B Bryan and Audre	ryan and Audrey checkout at base Ops.		
				Technician Signature:
List of S	amples			rechnician Signature.
Collecte	d:	No	one	
Deviatio	n from	MW-32 has 3-wire connection and cannot be	pe sampled with Yellow Jacket current setur	ININ
Plans:				(*/)//
Vicitore	on Site:	Ne	one	· V
VISILOIS	on site.	190	one .	Technician Name (print):
Importa	nt			
	ne Calls /	Existing well wi	ring connections	Audrey Yorke
Photos '	Taken:			
QA/QC	d bv: The	omas W. Hensel Thomas 25.	thousel	A/QC Date: 1/10/2018
	J	emomas a.	7	



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:	775303101.0009	
		FA8903-16-D-0027	– Task Order:	0004	
Installa	ation:	DAVIS - Davis-Monthan AFB	 Investigation Area:	Basewide	
Weath	er:	Warm and Windy		1/29/2018 17:35	
Techni	ician(s):	S	— amantha Sargent and Garrett Tabor		
Descri	ption of Dail	ly Activities and Events:	-		
	-		servation/Comment		
Time 08:00	- '	<u> </u>	oser varion/Comment		
08:05		ty Meeting and PFAS Protocol Checklist			
08:30		at Swan gate and John M. at Craycroft gate for day passes			
09:00		eam at Swan gate to sponsor and CT Inc is also at the gate.			
09:05	Survey team	setting up base for coordinates			
09:45	MW02001 st	ırvey. DTW: 282.49' btoc			
10:11	Met John and	d CT Inc at MW03001 to move bins. DTW: 302.34' btoc			
11:30	Retrieved bir	s at MW02001			
12:00	All bins at lan	dfill staging area by the SVE system. (southwest of the tow	ver)		
12:30		ch and got tools to make a handle for the sounder			
13:45		DW tank (DAVIS-LIQUID IDW-TANK01) -very windy			
14:10		TW:350.49' btoc			
14:45	MW-42 DTW	: 331.06' btoc			
15:00 15:30		at base ops to proceed to wells near the runways			
16:13		the lid off of MW-28.			
16:20		d replace the water level for MW-28) DTW: 330.05' btoc			
16:25		y to find other wells			
16:30	MW-44 DTW	:328.14' btoc			
16:35	MW-40 DTW	: 338.07' btoc			
16:40	Returning to	base Ops			
17:10	Returned rad	lio to John .M			
17:25		d from Audrey's map) DTW: 293.81' btoc			
17:35	All personnel	off site. Drive back to Phoenix			
l ist of	Samples			Technician Sig	nature:
Collec	•	DAVIS-LIQUID	IDW-TANK01	\circ 1	111
	_				14
Deviat	ion from	No			
Plans:		No	ne	G W	200
		_			
Visitor	s on Site:	Survey team	and CT Inc	Technician Name	e (print):
Import	ant				\F*
	one Calls /	Pictures of task	ss for photo log	Samantha Sar	rgent
	s Taken:				
		-10 3 6 16	0		
QA/Q(C'd by:	Thomas W. Hensel Thomas W. Hen	sel	QA/QC Date: 1/30/2018	



APPENDIX B-2 DAILY PFAS PROTOCOL CHECKLISTS





Project Name: Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number: _ Task Order:			775303101.0009	
		FA8903-16-D-0027			0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather			
Site	/Area Name:	Mobilization	(ten	np./precipitation):		Clear, Hot	
Fiel	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		10/10/17 14:13	
Fi	eld Clothing and	PPE (as applicable):	Sa	mple Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	7	All sample container	rs made of HDPE o	or polypropylene. Samples are	
J	Field crew has i	not used fabric softener on clothing	J	not stored in contain	ners made of LDP		
J		not used cosmetics, moisturizers, hand cream, or roducts on exposed body parts this morning	J	Caps are lined or un	lined and made of	HDPE or polypropylene	
J	Field crew has r	not applied unacceptable sunscreen or insect	W	et Weather (as appli	cable):		
Fi	eld Equipment:		J	equipment, wet wea	ather gear made o	amples and/or sampling f Vinyl, polyurethane, PVC, latex	
✓ No Teflon® containing materials on-site		or rubber-coated materials only					
J	All sample mate silicon, or polyp	erials made from stainless steel, HDPE, acetate, propylene	Eq	uipment Decontamin	nation:		
J	No waterproof Products	field books on-site other than Rite-in-the-Rain®	J			mination of sample equipment	
J	No plastic clipb on-site	oards, binders, or spiral hard cover notebooks	☑ Alconox and Liquinox to be used as decontamination materials				
		Dook 'A@ No. A.	FO	od Considerations:			
J		Post-it® Notes) on-site vith regular ice only. No chemical (blue) ice packs	V		., Gatorade and Po	n of bottled water and/or owerade) that is available for	
	ncompliance issues	e boxes cannot be checked, the Field Manager shall descr s prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit investi	actio h PFA	n shall include removal	of noncompliance it	ems from the investigation area or	
	Describe the no	ncompliance issues (include personnel not in compliance	e) and	d action/outcome of nor	ncompliance:	Signature:	
None					Name (print): Kyle Keegan		
QA/	A/QC'd by: Thomas W. Hensel Thomas D. Hensel QA/QC Date: 2/23/2018						



Project Name: - Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number: —— Task Order:		775303101.0009		
		FA8903-16-D-0027			0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather			
Site/Area Name:		Lay Down Yard near Fire Training Pit	(ten	np./precipitation):	Clear, Hot		
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:	10/12/17 09:10		
Fie	eld Clothing and	PPE (as applicable):	Sa	ımple Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	All sample containers made of HDPE or polypropylene. Samples are				
J	Field crew has	not used fabric softener on clothing	J		ntainers made of LDPE		
J		not used cosmetics, moisturizers, hand cream, or roducts on exposed body parts this morning	J	Caps are lined or unl	ined and made of HDPE or polypropylene		
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as applic	able):		
	•				ect contact with samples and/or sampling		
	eld Equipment:		J	equipment, wet weather gear made of Vinyl, polyurethane, PVC, late or rubber-coated materials only			
J	No Teflon® cor	ntaining materials on-site					
J	All sample mat silicon, or polyp	erials made from stainless steel, HDPE, acetate, propylene	Eq.	uipment Decontamin	ation: n-site for decontamination of sample equip		
J	No waterproof Products	field books on-site other than Rite-in-the-Rain®	v	PFAS-ITEE Water of	n-site for decontainmation of sample equip	ment	
			Alconox and Liquir		nox to be used as decontamination materials		
J	on-site	poards, binders, or spiral hard cover notebooks	Food Considerations:				
	No adhosivos (I	Post-it® Notes) on-site	70	ou considerations.			
J		•	No food or drink on-site with exception of bottled water and/or				
J	Coolers filled w in possession	rith regular ice only. No chemical (blue) ice packs	hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area				
	ncompliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	actio h PFA	n shall include removal o	of noncompliance items from the investigation a esult in the permanent removal of worker(s) fro	area or	
	Describe the no	ncompliance issues (include personnel not in compliance) None	e) and	d action/outcome of non	Signature: Name (print):		
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	lena	l	Kyle Keegan QA/QC Date: 2/23/2018		



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
Con	tract:	FA8903-16-D-0027	Task Order:			0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	We	ather			
Site	/Area Name:	MW03001	(ten	mp./precipitation):		Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist	Dat	te and Time:		10/13/17 09:00	
Fi€	eld Clothing and	d PPE (as applicable):	Sc	ample Containers:			
J	Field crew in c	compliance with Tables 1 and 2, SOP AFW-01	All sample containers made of HDPE or polypropylene. Samples are				
1	Field crew has	not used fabric softener on clothing	not stored in containers made of LDPE				
V	Field crew has not used cosmetics, moisturizers, hand cream, or other related products on exposed body parts this morning		☐ Caps are lined or unlined and made of HDPE or polypropylene			of HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	/et Weather (as appli	cable):		
۰	•			•		samples and/or sampling	
	eld Equipment:		J	equipment, wet wea	-	of Vinyl, polyurethane, PVC,	
J	No Teflon [™] cor	ontaining materials on-site	_		•		
7	All sample mat silicon, or polyp	terials made from stainless steel, HDPE, acetate, propylene	_	quipment Decontamin		' ''	
>	No waterproof Products	f field books on-site other than Rite-in-the-Rain®	√	"PFAS-IIee water o	on-site ioi deconte	amination of sample equipment	
>		boards, binders, or spiral hard cover notebooks	Alconox and Liquinox to be used as decontamination materials				
	on-site		Food Considerations:				
1	No adhesives ((Post-it® Notes) on-site		No food or drink on	ı-site with exception	on of bottled water and/or	
>	Coolers filled w packs in posses	with regular ice only. No chemical (blue) ice ession	hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area				
	ncompliance issues	e boxes cannot be checked, the Field Manager shall desci s prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit investi	e actio th PFA	on shall include removal	of noncompliance it	tems from the investigation area or	
	Describe the no	oncompliance issues (include personnel not in complianc	:e) and	d action/outcome of nor	ncompliance:	Signature:	
	None					Name (print): Kyle Keegan	
QA/	/QC'd by:	Thomas W. Hensel Thomas 2. He	mae	l	QA/QC Date:	2/23/2018	



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Pro	ject Number:		775303101.0009	
Con	tract:	FA8903-16-D-0027	Task Order: Weather			0004	
Inst	allation:	DAVIS - Davis-Monthan AFB					
Site	/Area Name:	AFFF Area 03	(ten	mp./precipitation):		Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist	Dat	te and Time:		10/14/17 07:05	
Fie	eld Clothing and	d PPE (as applicable):	Sc	ample Containers:			
J	Field crew in c	compliance with Tables 1 and 2, SOP AFW-01	-	All sample containers made of HDPE or polypropylene. Samples are			
J	Field crew has	s not used fabric softener on clothing	V	not stored in containers made of I			
7		s not used cosmetics, moisturizers, hand cream, ed products on exposed body parts this morning	J	Caps are lined or unl	lined and made o	of HDPE or polypropylene	
>	Field crew has repellant	s not applied unacceptable sunscreen or insect	W	Vet Weather (as applic	:able):		
F:			-	•		samples and/or sampling	
	eld Equipment:		7	equipment, wet wea latex or rubber-coate	-	of Vinyl, polyurethane, PVC,	
J	☑ No Teflon® containing materials on-site						
7	All sample mat silicon, or poly	aterials made from stainless steel, HDPE, acetate, ypropylene	_	quipment Decontamin		to the secondarian	
V	No waterproof field books on-site other than Rite-in-the-Rain® Products		V	☑ "PFAS-free" water on-site for deconta		amination of sample equipment	
>	No plastic clipt	boards, binders, or spiral hard cover notebooks	✓ Alconox and Liquinox to be used as decontamination materials			lecontamination materials	
_			Fo	ood Considerations:			
1	No adhesives ((Post-it® Notes) on-site	_		•	ion of bottled water and/or	
7	Coolers filled w	with regular ice only. No chemical (blue) ice ession	hydration drinks (i.e., Gatorade and Powerade) that is available consumption only in the staging area			·	
	ncompliance issues	e boxes cannot be checked, the Field Manager shall descr is prior to commencement of that day's work. Corrective ffsite until in compliance. Repeated failure to comply wit invest	e actio th PFA	on shall include removal o	of noncompliance i	items from the investigation area or	
	Describe the no	oncompliance issues (include personnel not in complianc	ce) an	d action/outcome of non	ncompliance:	Signature:	
		None				THE	
						Name (print): Kyle Keegan	
QA/	/QC'd by:	Thomas W. Hensel Thomas 2. 4	lens	el	QA/QC Date:	2/23/2018	



Project Name: Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Proj	ect Number:		775303101.0009	
		FA8903-16-D-0027	- Task Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	— Weather				
Site/Area Name:		AFFF Release area 03	(ten	np./precipitation):		Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		10/15/17 06:46	
Fie	eld Clothing and	PPE (as applicable):	Sa	mple Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	All sample containers made of HDPE or polypropylene. Samples are				
J	Field crew has	not used fabric softener on clothing	J	not stored in containers made			
J		not used cosmetics, moisturizers, hand cream, or products on exposed body parts this morning	J	Caps are lined or ur	nlined and made of	HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appli	cable):		
	·			•		imples and/or sampling	
	eld Equipment:		J	or rubber-coated m	-	f Vinyl, polyurethane, PVC, latex	
J	No Teflon® cor	ntaining materials on-site	_				
J	All sample mate silicon, or polyg	erials made from stainless steel, HDPE, acetate,	Eq	uipment Decontami	nation:		
	silicon, or polyp	лорунене	1	"PFAS-free" water	on-site for deconta	mination of sample equipment	
J	No waterproof Products	field books on-site other than Rite-in-the-Rain®					
	rroducts		☑ Alconox and Liquinox to be used as decontamination materials			contamination materials	
J	No plastic clipb on-site	poards, binders, or spiral hard cover notebooks					
_			Fo	ood Considerations:			
J	No adhesives (I	Post-it [®] Notes) on-site	No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area				
J	Coolers filled w in possession	vith regular ice only. No chemical (blue) ice packs					
	ncompliance issues	e boxes cannot be checked, the Field Manager shall descr is prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit invest	actio h PFA	n shall include removal	of noncompliance it	ems from the investigation area or	
	Describe the no	oncompliance issues (include personnel not in compliance) None	e) and	d action/outcome of no	ncompliance:	Signature:	
None					Name (print):		
						Kyle Keegan	
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	nee	l	QA/QC Date:	2/23/2018	



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Pro	ject Number:		775303101.0009
Con	tract:	FA8903-16-D-0027	Task Order: Weather			0004
Inst	allation:	DAVIS - Davis-Monthan AFB				
Site/Area Name:		FT03	(ter	mp./precipitation):		Sunny, 90's
Field	d Manager:	Garrett Tabor - Field Lead	Dat	e and Time:		10/16/17 11:20
Fie	eld Clothing and	PPE (as applicable):	Sc	ample Containers:		
 ✓ Field crew in compliance with Tables 1 and 2, SOP AFW-01 ✓ Field crew has not used fabric softener on clothing 		All sample containers made of HDPE or polypropylene. Samples are not stored in containers made of LDPE				
Field crew has not used cosmetics, moisturizers, hand cream, or other related products on exposed body parts this morning		V	Caps are lined or un	llined and made o	of HDPE or polypropylene	
Field crew has not applied unacceptable sunscreen or insect		W	et Weather (as appli	cable):		
repellant Field Equipment:		V	•	ather gear made	samples and/or sampling of Vinyl, polyurethane, PVC,	
7	All sample mat	ntaining materials on-site serials made from stainless steel, HDPE, acetate,	Ec	quipment Decontamir	nation:	
>	No waterproof Products	field books on-site other than Rite-in-the-Rain®	J	"PFAS-free" water o	on-site for decont	amination of sample equipment
7		poards, binders, or spiral hard cover notebooks	Alconox and Liquinox to be used as decontamination materials			
			Fo	ood Considerations:		
J		Post-it® Notes) on-site vith regular ice only. No chemical (blue) ice ssion	No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area			
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	actic h PFA	on shall include removal	of noncompliance i	tems from the investigation area or
	Describe the no	ncompliance issues (include personnel not in compliance)	e) an	d action/outcome of noi	ncompliance:	Signature:
None					Name (print): Garrett Tabor	
QA/	QC'd by:	Thomas W. Hensel Thomas 2. He	nae	l	QA/QC Date:	2/23/2018



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
Con	tract:	FA8903-16-D-0027	Task Order: Weather		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB					
Site	/Area Name:	AFFF RELEASE AREA 03	(ter	mp./precipitation):		Clear, Hot, 90s	
Field	d Manager:	Kyle Keegan - Geologist	Dat	te and Time:		10/16/17 06:37	
Fie	eld Clothing and	l PPE (as applicable):	So	ample Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	All sample containers made of HDPE or polypropylene. Samples are				
J	Field crew has not used fabric softener on clothing		not stored in containers made of LDPE				
J		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	V	Caps are lined or unli	ined and made o	of HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	И	Vet Weather (as applic	able):		
Ei,	old Equipment:			•		samples and/or sampling	
Field Equipment: No Teflon® containing materials on-site		ataining materials on site	 equipment, wet weather gear magnetischen latex or rubber-coated materials of 				
>		terials made from stainless steel, HDPE, acetate,	E	quipment Decontamino	ation:		
•	silicon, or poly	propylene	2	"DEAC froo" water or	ita fau daaant		
>	No waterproof Products	f field books on-site other than Rite-in-the-Rain®	J	PFA5-life water or	i-site for decont	amination of sample equipment	
>	No plastic clipt	poards, binders, or spiral hard cover notebooks	Alconox and Liquinox to		x to be used as o	lecontamination materials	
	on-site		Fo	ood Considerations:			
J	No adhesives (Post-it® Notes) on-site		No food or drink on-s	site with excepti	on of bottled water and/or	
7	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area			•	
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit invest	e action	on shall include removal o	f noncompliance	tems from the investigation area or	
	Describe the no	oncompliance issues (include personnel not in compliance) None	ce) an	d action/outcome of none	compliance:	Signature: Name (print):	
			./	D		Kyle Keegan	
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	ense	el	QA/QC Date:	2/23/2018	



Project Name: Contract: Installation: Site/Area Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Proj	ject Number:	775303101.0009	
		FA8903-16-D-0027	Task Order: Weather		0004	
		DAVIS - Davis-Monthan AFB			Class Hat	
		AFFF Release Area 03	(ten	np./precipitation):	Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist	Dat	e and Time:	10/17/17 06:34	
Fiε	eld Clothing and	l PPE (as applicable):	Sa	ample Containers:		
J	Field crew in c	ompliance with Tables 1 and 2, SOP AFW-01		All sample containe	ers made of HDPE or polypropylene. Samples are	
J	Field crew has	not used fabric softener on clothing	J	not stored in contain		
7		not used cosmetics, moisturizers, hand cream, ed products on exposed body parts this morning	J	Caps are lined or ur	nlined and made of HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appli		
Fie	eld Equipment:		J	•	ect contact with samples and/or sampling ather gear made of Vinyl, polyurethane, PVC,	
<i>y</i>		ontaining materials on-site	latex or rubber-coat			
7	All sample mat	terials made from stainless steel, HDPE, acetate, propylene	Eq	quipment Decontami		
7	No waterproof	f field books on-site other than Rite-in-the-Rain®	J	"PFAS-free" water o	on-site for decontamination of sample equipment	
	No plastic clink	boards, binders, or spiral hard cover notebooks	Alconox and Liquino		ox to be used as decontamination materials	
J	on-site	sources, on spiral nara cover notesooks	Fo	ood Considerations:		
J	No adhesives ((Post-it® Notes) on-site		No food or drink on	site with exception of bottled water and/or	
7	Coolers filled v	with regular ice only. No chemical (blue) ice ssion	hydration drinks (i.e., Gatorade and Powerade) that is available consumption only in the staging area			
	compliance issues	e boxes cannot be checked, the Field Manager shall desc s prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit invest	e actio	on shall include removal	of noncompliance items from the investigation area or $% \left(1\right) =\left(1\right) \left(1\right)$	
	Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: Signature:					
			Name (print): Kyle Keegan			
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	me	l	QA/QC Date: 2/23/2018	



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009
Con	tract:	FA8903-16-D-0027 Task O i		k Order:		0004
Inst	allation:	DAVIS - Davis-Monthan AFB	We	ather _		
Site	/Area Name:	AFFF RELEASE AREA 03	(ter	mp./precipitation):		Clear, Hot
Field	d Manager:	Kyle Keegan - Geologist	Dat	te and Time:		10/18/17 06:40
Fie	eld Clothing and	PPE (as applicable):	Sa	ample Containers:		
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	-	All sample container	rs made of HDPE	or polypropylene. Samples are
J	Field crew has	not used fabric softener on clothing	not stored in contain			
>		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	J	Caps are lined or unl	lined and made o	of HDPE or polypropylene
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	/et Weather (as applic	rable):	
Ei,			E91	•		samples and/or sampling
_	eld Equipment:	ata in the amenda single can be a	 equipment, wet weather gear made of Vinyl, polyurethane, PVC, latex or rubber-coated materials only 			
		ntaining materials on-site	E			
7	All sample mat silicon, or poly	erials made from stainless steel, HDPE, acetate, propylene	_	quipment Decontamin		
>	No waterproof Products	field books on-site other than Rite-in-the-Rain®	J	"PFAS-Tree water or	n-site for decont	amination of sample equipment
>	No plastic clipb	poards, binders, or spiral hard cover notebooks	☑ Alconox and Liquinox to be used as decontamination materials			
~	on-site		Fo	ood Considerations:		
J	No adhesives (Post-it® Notes) on-site		No food or drink on-	site with excepti	on of bottled water and/or
>	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	J		., Gatorade and I	Powerade) that is available for
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	action	on shall include removal o	of noncompliance i	tems from the investigation area or nent removal of worker(s) from the
	Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: None Signature:					
						Name (print): Kyle Keegan
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	me	el o	QA/QC Date:	2/23/2018



Project Name: - Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
		FA8903-16-D-0027		Task Order:		0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	We	ather			
Site/Area Name:		AFFF RELEASE AREA 01	(ter	mp./precipitation):		Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist	Dat	e and Time:		10/19/17 06:43	
Fie	eld Clothing and	PPE (as applicable):	Sc	ample Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01		All sample containe	rs made of HDPE	or polypropylene. Samples are	
J	Field crew has	not used fabric softener on clothing	J	•	tainers made of LDPE		
J		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	4	Caps are lined or ur	nlined and made o	f HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	/et Weather (as appli	cable):		
Ei	eld Equipment:		[7]	•		amples and/or sampling	
_		ataining materials on site	 equipment, wet weather gear made latex or rubber-coated materials only 				
		ntaining materials on-site	.	aviament Decentemi	tamination.		
>	All sample mat silicon, or poly	terials made from stainless steel, HDPE, acetate, propylene		quipment Decontamii			
>	No waterproof Products	field books on-site other than Rite-in-the-Rain®	1	"PFAS-free" water o	on-site for deconta	amination of sample equipment	
	No plastic clipt	boards, binders, or spiral hard cover notebooks		Alconox and Liquinox to be used as decontamination materia			
J	on-site		Food Considerations:				
J	No adhesives (Post-it® Notes) on-site		No food or drink on	-site with exception	on of hottled water and/or	
7	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	J	No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available fo consumption only in the staging area			
If any applicable boxes cannot be checked, the Field Manager shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the investigation area or removal of worker offsite until in compliance. Repeated failure to comply with PFAS sample protocols will result in the permanent removal of worker(s) from the investigation area.							
	Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: None Name (print):						
						Kyle Keegan	
QA/	QC'd by:	Thomas W. Hensel Thomas 2. The	ne	l	QA/QC Date:	2/23/2018	



Project Name: - Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number: Task Order:			775303101.0009
		FA8903-16-D-0027			0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather .		
Site/Area Name:		AFFF Release Area 01	(ten	np./precipitation):		Clear, Hot
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		10/24/17 08:36
Fie	eld Clothing and	PPE (as applicable):	Sa	mple Containers:		
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	Est.	All sample containe	rs made of HDPE o	or polypropylene. Samples are
J	Field crew has	not used fabric softener on clothing	not stored in container		ners made of LDPE	
J		not used cosmetics, moisturizers, hand cream, or products on exposed body parts this morning	J	Caps are lined or un	lined and made of	HDPE or polypropylene
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appli	cable):	
Fie	eld Equipment:		J	•		amples and/or sampling f Vinyl, polyurethane, PVC, latex
0	No Teflon® cor	ntaining materials on-site		or rubber-coated ma	aterials only	
J	All sample mat silicon, or polyp	erials made from stainless steel, HDPE, acetate,	Eq	uipment Decontamin	nation:	
J		field books on-site other than Rite-in-the-Rain®	J	"PFAS-free" water o	n-site for deconta	mination of sample equipment
J	No plastic clipboards, binders, or spiral hard cover notebooks		Alconox and Liquinox to be used as decontamination materials			
	on-site		Fo	od Considerations:		
J	No adhesives (I	Post-it® Notes) on-site		No food or drink on-	-site with exceptio	n of bottled water and/or
J	Coolers filled win possession	vith regular ice only. No chemical (blue) ice packs	 hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area 			
	ncompliance issues	e boxes cannot be checked, the Field Manager shall descr s prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit invest	actio h PFA	n shall include removal	of noncompliance it	ems from the investigation area or
Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance.					ncompliance:	Signature: Name (print):
				0		Kyle Keegan
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	ense	d	QA/QC Date:	2/23/2018



Project Name: _ Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number: Task Order:		775303101.0009	
		FA8903-16-D-0027				
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather		
Site	/Area Name:	AFFF RELEASE AREA 01	(ten	np./precipitation):		Clear, Hot
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		10/25/17 06:45
Fie	eld Clothing and	PPE (as applicable):	Sa	mple Containers:		
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	J	All sample containers made of HDI		or polypropylene. Samples are
J	Field crew has r	not used fabric softener on clothing	not stored in containers		ners made of LDP	
J		not used cosmetics, moisturizers, hand cream, or roducts on exposed body parts this morning	J	Caps are lined or un	lined and made of	HDPE or polypropylene
J	Field crew has r	not applied unacceptable sunscreen or insect	W	et Weather (as appli	cable):	
- :				•		amples and/or sampling
	eld Equipment:		J	or rubber-coated ma	-	f Vinyl, polyurethane, PVC, latex
J		ntaining materials on-site	- -			
J	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Equipment Decontamination:			
			J	"PFAS-free" water o	n-site for deconta	mination of sample equipment
J	No waterproof Products	field books on-site other than Rite-in-the-Rain®				
	A			Alconox and Liquino	x to be used as de	econtamination materials
J	on-site	oards, binders, or spiral hard cover notebooks	Food Considerations:			
J	No adhesives (F	Post-it® Notes) on-site				
J		vith regular ice only. No chemical (blue) ice packs	No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area			
	ncompliance issues	boxes cannot be checked, the Field Manager shall descr prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	actio h PFA	n shall include removal	of noncompliance it	ems from the investigation area or
	Describe the no	ncompliance issues (include personnel not in compliance) None	e) and	d action/outcome of nor	ncompliance:	Signature: Name (print):
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	ense	l	QA/QC Date:	Kyle Keegan 2/23/2018



Project Name: - Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009		
		FA8903-16-D-0027		Task Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	We	ather _				
Site/Area Name:		AFFF RELEASE AREA 01	(ter	mp./precipitation):		Clear, Hot		
Field	d Manager:	Kyle Keegan - Geologist	Dat	te and Time:		10/26/17 06:37		
Fic	eld Clothing and	PPE (as applicable):	Sc	ample Containers:				
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01		All sample container	s made of HDPE	or polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing	J	not stored in contain				
J		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	J	Caps are lined or un	lined and made o	of HDPE or polypropylene		
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	Vet Weather (as applic	able):			
	•			•		samples and/or sampling		
_	eld Equipment:		J	 equipment, wet weather gear made of Vinyl, polyurethane, PVC, latex or rubber-coated materials only 				
J	No Tetion® co	ntaining materials on-site	_					
J	All sample mat silicon, or poly	erials made from stainless steel, HDPE, acetate, propylene	_	quipment Decontamin				
J	No waterproof Products	field books on-site other than Rite-in-the-Rain®	J	"PFAS-free" water o	n-site for decont	amination of sample equipment		
√		poards, binders, or spiral hard cover notebooks	₽	Alconox and Liquino	x to be used as d	econtamination materials		
J	No adhesives (Post-it® Notes) on-site		No food or dripk on	sita with avaanti	on of bottled water and/or		
J	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	No food or drink on-site with exception of bottled wat hydration drinks (i.e., Gatorade and Powerade) that is consumption only in the staging area			Powerade) that is available for		
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	e actio	on shall include removal o	of noncompliance i	tems from the investigation area or		
	Describe the no	ncompliance issues (include personnel not in compliance) None	ce) and	d action/outcome of nor	icompliance:	Name (print): Kyle Keegan		
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 4	mae	l	QA/QC Date:	2/23/2018		



Project Name: _ Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Worldwide Project Number:		775303101.0009		
		FA8903-16-D-0027				0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather			
Site	/Area Name:	AFFF RELEASE AREA 01	(ten	np./precipitation):		Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		10/27/17 06:50	
Fie	eld Clothing and	PPE (as applicable):	Sa	ample Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	-	All sample containers made of HDP		or polypropylene. Samples are	
J	Field crew has i	not used fabric softener on clothing	not stored in containers made		ners made of LDPI	<u> </u>	
J		not used cosmetics, moisturizers, hand cream, or roducts on exposed body parts this morning	J	Caps are lined or un	lined and made of	f HDPE or polypropylene	
J	Field crew has r	not applied unacceptable sunscreen or insect	W	et Weather (as applic	cable):		
				•		amples and/or sampling	
	eld Equipment:		J	or rubber-coated ma	-	f Vinyl, polyurethane, PVC, latex	
J	No Tetion® cor	ntaining materials on-site	_				
1	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Equipment Decontamination:				
	5co, c. pc.,,p		J	"PFAS-free" water o	n-site for deconta	mination of sample equipment	
J	No waterproof Products	field books on-site other than Rite-in-the-Rain®					
	No plastic cliphoards, hinders, or spiral hard cover notehooks		J	Alconox and Liquino	x to be used as de	decontamination materials	
J			Food Considerations:				
100		Post-it® Notes) on-site	FO	ooa Considerations:			
J		•			-	on of bottled water and/or owerade) that is available for	
J	Coolers filled w in possession	rith regular ice only. No chemical (blue) ice packs	V	consumption only in		owerade) that is available for	
	ncompliance issues	e boxes cannot be checked, the Field Manager shall descr s prior to commencement of that day's work. Corrective fiste until in compliance. Repeated failure to comply wit invest	actio th PFA	on shall include removal	of noncompliance it	ems from the investigation area or	
	Describe the no	ncompliance issues (include personnel not in complianc	e) and	d action/outcome of nor	ncompliance:	Signature:	
None						Name (print):	
						Kyle Keegan	
QA/	QC'd by:	Thomas W. Hensel Thomas J. Hen	nde	l	QA/QC Date:	2/23/2018	



Project Name: - Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number: Task Order:			775303101.0009		
		FA8903-16-D-0027			0004			
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather				
Site/Area Name:		AFFF RELEASE AREA 01	(ten	np./precipitation):		Clear, Hot		
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		10/28/17 07:00		
Fie	eld Clothing and	PPE (as applicable):	Sa	mple Containers:				
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01		All sample containe	rs made of HDPE o	r polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing	not stored in contain					
J		not used cosmetics, moisturizers, hand cream, or roducts on exposed body parts this morning	J	Caps are lined or ur	ilined and made of	HDPE or polypropylene		
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appli	cable):			
	•					imples and/or sampling		
	eld Equipment:		J	or rubber-coated m	_	f Vinyl, polyurethane, PVC, latex		
J	No Teflon® cor	ntaining materials on-site						
J	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Equipment Decontamination:					
	No waterproof field books on-site other than Rite-in-the-Rain® Products		J	"PFAS-free" water o	on-site for deconta	decontamination of sample equipment		
J								
	No plastic clipboards, binders, or spiral hard cover notebooks		☑ Alconox and Liquinox to be used a		ox to be used as de	contamination materials		
J			- 10 11 11					
_	on-site		Fo	ood Considerations:				
J	No adhesives (I	Post-it [®] Notes) on-site	_			n of bottled water and/or		
J	Coolers filled w in possession	possession with regular ice only. No chemical (blue) ice packs possession I hydration drinks (i.e., Gatorade a consumption only in the staging				·		
	ncompliance issues	e boxes cannot be checked, the Field Manager shall descr s prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit invest	actio h PFA	n shall include removal	of noncompliance it	ems from the investigation area or		
	Describe the no	oncompliance issues (include personnel not in complianc	e) and	d action/outcome of no	ncompliance:	Signature:		
None						Name (print):		
						Kyle Keegan		
QA/	QC'd by:	Thomas W. Hensel Thomas 2. Hen	ne	l	QA/QC Date:	2/23/2018		



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
Con	tract:	FA8903-16-D-0027 Task Order:		k Order:		0004	
Insta	allation:	DAVIS - Davis-Monthan AFB	We	ather			
Site	/Area Name:	AFFF RELEASE AREA 01	(ter	mp./precipitation):		Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist	Dat	e and Time:		10/29/17 06:41	
Fiε	eld Clothing and	PPE (as applicable):	Sample Containers:				
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	-	All sample containers	s made of HDPE	or polypropylene. Samples are	
J	Field crew has	not used fabric softener on clothing	not stored in contain				
>		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	J	Caps are lined or unli	ined and made	of HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as applica	able):		
F:.			- Total	•		samples and/or sampling	
	eld Equipment:	etainine matarials on sita	V	latex or rubber-coate	-	of Vinyl, polyurethane, PVC, y	
7		ntaining materials on-site	E.	' De-embanaine	•••		
>	All sample mat silicon, or polyp	erials made from stainless steel, HDPE, acetate, propylene	Equipment Decontamination:			· · · · · · · · · · · · · · · · · · ·	
V	No waterproof Products	field books on-site other than Rite-in-the-Rain®	J	"PFAS-tree" water or	1-site for decom	tamination of sample equipment	
>	No plastic clipb on-site	poards, binders, or spiral hard cover notebooks	✓	Alconox and Liquinox pod Considerations:	x to be used as o	decontamination materials	
J	No adhesives (Post-it® Notes) on-site		No food or drink on-s	site with excent	ion of bottled water and/or	
y	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	J		, Gatorade and	Powerade) that is available for	
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	action	on shall include removal o	of noncompliance	items from the investigation area or anent removal of worker(s) from the	
	Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: None Signature:					HA	
						Name (print): Kyle Keegan	
QA/	QC'd by:	Thomas W. Hensel Thomas 2. Ife	nee	l a	QA/QC Date:	2/23/2018	



Project Name: _ Contract:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
		FA8903-16-D-0027 Tas		k Order:		0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather			
Site	/Area Name:	AFFF RELEASE AREA 02	(ten	np./precipitation):		Clear, Hot	
Field	d Manager:	Kyle Keegan - Geologist		e and Time:		12/19/2017 7:00	
Fi	eld Clothing and F	PPE (as applicable):	Sa	ample Containers:			
J	Field crew in co	mpliance with Tables 1 and 2, SOP AFW-01	127	All sample containe	ers made of HDPE o	or polypropylene. Samples are	
J	Field crew has n	ot used fabric softener on clothing	not stored in contai		iners made of LDPE		
V		ot used cosmetics, moisturizers, hand cream, products on exposed body parts this morning	√	Caps are lined or un	nlined and made of	HDPE or polypropylene	
>	Field crew has n	ot applied unacceptable sunscreen or insect	W	et Weather (as appli	cable):		
Fi	eld Equipment:		V	•	ather gear made o	amples and/or sampling of Vinyl, polyurethane, PVC,	
J	No Teflon® con	taining materials on-site		latex of Tubber-coa	teu materiais omy	andia only	
>	All sample mate silicon, or polyp	rials made from stainless steel, HDPE, acetate, ropylene	Eq	quipment Decontamir			
>	No waterproof f	field books on-site other than Rite-in-the-Rain®	J	"PFAS-free" water o	on-site for deconta	mination of sample equipment	
J	No plastic clipboards, binders, or spiral hard cover notebooks		Alconox and Liquinox to be used as decontamination materials				
	on-site		Fo	ood Considerations:			
V	No adhesives (P	ost-it® Notes) on-site		No food or drink on	-site with exceptio	on of bottled water and/or	
J	Coolers filled wi in possession	th regular ice only. No chemical (blue) ice packs	hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area			owerade) that is available for	
	compliance issues p	poxes cannot be checked, the Field Manager shall descr prior to commencement of that day's work. Corrective ite until in compliance. Repeated failure to comply wit invest	actio th PFA	n shall include removal	of noncompliance it	ems from the investigation area or	
	Describe the non-	compliance issues (include personnel not in complianc	e) and	d action/outcome of nor	ncompliance:	Signature:	
		None				Name (print):	
						Kyle Keegan	
QA/	QC'd by: T	Thomas W. Hensel Thomas 2.	1/en	ul	QA/QC Date:	1/3/2018	



Proj	ject Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009		
Con	tract:	FA8903-16-D-0027	Tasl	k Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather				
Site	/Area Name:	AFFF RELEASE AREA 02		np./precipitation):		Clear, cool		
Fiel	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		12/20/17 07:00		
Fi	eld Clothing and	I PPE (as applicable):	Sa	ımple Containers:				
7	Field crew in c	ompliance with Tables 1 and 2, SOP AFW-01	J	•		or polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing		not stored in conta	iners made of LD	iers made of LDPE		
7		not used cosmetics, moisturizers, hand cream, and products on exposed body parts this morning	1	Caps are lined or u	nlined and made	of HDPE or polypropylene		
7	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appl	icable):			
	•			•		samples and/or sampling		
	Field Equipment:		J	equipment, wet weather gear made of Vinyl, polyurethane, F latex or rubber-coated materials only				
J	No Teflon® co	ntaining materials on-site						
7	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene			uipment Decontami				
V	No waterproof	f field books on-site other than Rite-in-the-Rain®	J	PFAS-free* water (on-site for decon	tamination of sample equipment		
>	No plastic clipboards, binders, or spiral hard cover notebooks		Alconox and Liquinox to be used as decontamination materials					
	on-site		Fo	ood Considerations:				
J	No adhesives (Post-it® Notes) on-site	No food or drink on-site with exception of bottled water and/or					
7	Coolers filled v	vith regular ice only. No chemical (blue) ice ssion	J	hydration drinks (i.c consumption only i		d Powerade) that is available for rea		
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective fite until in compliance. Repeated failure to comply wit invest	actio th PFA	n shall include removal	of noncompliance	items from the investigation area or		
	Describe the no	ncompliance issues (include personnel not in compliance) None	ce) and	d action/outcome of no	ncompliance:	Signature:		
				0		Name (print): Kyle Keegan		
QA/	QC'd by:	Thomas W. Hensel Thomas &	Hen	ul	QA/QC Date:	1/3/2018		



Proj	ect Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:		:	775303101.0009.0300		
Con	tract:	FA8903-16-D-0027	Tasl	k Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather				
Site	/Area Name:	AFFF RELEASE AREA 02	(temp./precipitation):			Clear, cool		
Field	d Manager:	Kyle Keegan - Geologist	Dat	e and Time:		12/21/17 07:08		
Fie	eld Clothing and	PPE (as applicable):	Sa	ample Containers:				
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	_	All sample containe	ers made of HDP	E or polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing	J	not stored in conta				
V		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	V	Caps are lined or u	nlined and made	of HDPE or polypropylene		
V	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appl	icable):			
Field Equipment:		For personnel in direct contact with samples and/or sampling equipment, wet weather gear made of Vinyl, polyurethane, PVC,						
J	✓ No Teflon® containing materials on-site			latex or rubber-coa	ted materials on	ly		
>	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Eq	quipment Decontami	ination:			
7	No waterproof field books on-site other than Rite-in-the-Rain® Products		4	"PFAS-free" water	on-site for decon	tamination of sample equipment		
7		ooards, binders, or spiral hard cover notebooks	Alconox and Liquinox to be used as decontamination materials					
	on-site		Fo	ood Considerations:				
J	No adhesives (Post-it® Notes) on-site		No food or drink or	n-site with excep	tion of bottled water and/or		
V	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	√	hydration drinks (i. consumption only i		d Powerade) that is available for ea		
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wi invest	e actio th PFA	n shall include removal	of noncompliance	items from the investigation area or		
	Describe the no	ncompliance issues (include personnel not in compliand	ce) and	d action/outcome of no	oncompliance:	Signature:		
04/	QC'd by:	Thomas W. Hensel Thomas 2.	11		QA/QC Date:	Name (print): Kyle Keegan 1/3/2018		
QΑ/	ασ u by.	Thomas a. w	gena	ec	wave Date.	1/3/2010		



Proj	ect Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Proj	ect Number:	775303101.0009.0300			
Con	tract:	FA8903-16-D-0027	Tasl	· Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather				
Site	/Area Name:	AFFF RELEASE AREA 02	(ten	np./precipitation):		Clear, cold		
Contract: FA8903-16-D-0027 Installation: DAVIS - Davis-Monthan AFB		Kyle Keegan - Geologist	Date	e and Time:		12/22/17 07:00		
Fie	eld Clothing and	l PPE (as applicable):	Sa	mple Containers:				
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	- Fig	All sample containe	ers made of HDPE	or polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing	J	not stored in contai				
>		not used cosmetics, moisturizers, hand cream, ed products on exposed body parts this morning	J	Caps are lined or un	nlined and made of HDPE or polypropylene			
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appli	icable):			
- :	·		For personnel in direct contact with samples and/or sampling equipment, wet weather gear made of Vinyl, polyurethane, PVC, latex or rubber-coated materials only					
	Field Equipment:							
J		ontaining materials on-site	- -	December of	st			
J	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Eq	uipment Decontamii	nation:			
		,	J	"PFAS-free" water o	on-site for decont	amination of sample equipment		
J	No waterproof Products	f field books on-site other than Rite-in-the-Rain®						
	rioducts		J	Alconox and Liquino	ox to be used as o	decontamination materials		
J	No plastic clipb on-site	boards, binders, or spiral hard cover notebooks						
F-01		(D. 110 No. 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	FO	od Considerations:				
J		(Post-it® Notes) on-site				ion of bottled water and/or		
7	Coolers filled w packs in posses	with regular ice only. No chemical (blue) ice ession	✓	hydration drinks (i.e consumption only i		Powerade) that is available for		
	compliance issues	e boxes cannot be checked, the Field Manager shall desc is prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit invest	actio th PFA	n shall include removal	of noncompliance	items from the investigation area or		
	Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: None							
						Name (print): Kyle Keegan		
QA/	QC'd by:	Thomas W. Hensel Thomas 2. 3	Hens	el	QA/QC Date:	1/3/2018		



Pro	ect Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009.0300		
Con	tract:	FA8903-16-D-0027	Tasl	k Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather				
Site	/Area Name:	AFFF RELEASE AREA 02		np./precipitation):		Clear, cool		
Fiel	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		12/23/17 07:04		
Fi	eld Clothing and	I PPE (as applicable):	Sa	ample Containers:				
J	Field crew in c	ompliance with Tables 1 and 2, SOP AFW-01		All sample containe	ers made of HDP	E or polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing	J	not stored in conta				
>		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	√	Caps are lined or u	nlined and made of HDPE or polypropylene			
>	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appl	icable):			
	•		_	•		samples and/or sampling		
_	eld Equipment:		J		veather gear made of Vinyl, polyurethane, PVC, pated materials only			
J	No Teflon® co	ntaining materials on-site	_					
J	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Eq	quipment Decontami	nation:			
			1	"PFAS-free" water	on-site for decor	tamination of sample equipment		
J	No waterproof Products	field books on-site other than Rite-in-the-Rain®						
			J	Alconox and Liquin	ox to be used as	decontamination materials		
J	No plastic clipt on-site	poards, binders, or spiral hard cover notebooks	.	ood Considerations:				
7	No adhesives (Post-it® Notes) on-site	FU	ioa considerations:				
v			J		i-site with exception of bottled water and/or e., Gatorade and Powerade) that is available for n the staging area			
J	packs in posse	vith regular ice only. No chemical (blue) ice ssion		consumption only i				
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	e actio th PFA	n shall include removal	l of noncompliance	items from the investigation area or		
	Describe the no	ncompliance issues (include personnel not in compliance) None	ce) and	d action/outcome of no	oncompliance:	Signature: Name (print): Kyle Keegan		
QA/	QC'd by:	Thomas W. Hensel Thomas 25.	Yens	el	QA/QC Date:	1/3/2018		



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:		775303101.0009			
Con	tract:	FA8903-16-D-0027	Tasl	c Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather				
Site	/Area Name:	AFFF RELEASE AREA 01 and 02	(ten	np./precipitation):		Clear, cool		
Project Name: Environmental Programs World Contract: FA8903-16-D-0027 Installation: DAVIS - Davis-Monthan AF Site/Area Name: AFFF RELEASE AREA 01 and		Kyle Keegan - Geologist	Date	e and Time:		01/02/18 10:11		
Fie	eld Clothing and	PPE (as applicable):	Sa	mple Containers:				
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	EST	All sample containe	ers made of HDPE	or polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing	J	not stored in contain	iners made of LDI	PE		
J		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	J	☑ Caps are lined or unlined and r		of HDPE or polypropylene		
J	Field crew has repellant	not applied unacceptable sunscreen or insect	Wet Weather (as applicable):					
- :	•		For personnel in direct contact with samples and/or sampling equipment, wet weather gear made of Vinyl, polyurethane, PVC, latex or rubber-coated materials only					
_	Field Equipment:							
J	No Teflon® containing materials on-site			in				
J	All sample mat silicon, or poly	erials made from stainless steel, HDPE, acetate, propylene	Eq	uipment Decontami	nation:			
		•	J	"PFAS-free" water o	on-site for decont	amination of sample equipment		
J	No waterproof field books on-site other than Rite-in-the-Rain® Products							
			J	Alconox and Liquino	ox to be used as o	lecontamination materials		
J	No plastic clipt on-site	poards, binders, or spiral hard cover notebooks	-	ad Camaidanatiana.				
EGA.		Doct it® Notes on site	FO	od Considerations:				
J	•	Post-it® Notes) on-site			•	on of bottled water and/or		
J	Coolers filled w packs in posses	vith regular ice only. No chemical (blue) ice ssion	hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area					
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	actio h PFA	n shall include removal	of noncompliance	tems from the investigation area or		
	Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: None							
				<i>A</i>		Name (print): Kyle Keegan		
QA/	QC'd by:	Thomas W. Hensel Thomas 25	Lens	rel	QA/QC Date:	1/5/2018		



Proj	ject Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009		
Con	tract:	FA8903-16-D-0027	Tasl	k Order:		0004		
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather				
Site	/Area Name:	AFFF RELEASE AREA 01, 02, and 03		np./precipitation):		Clear, cool		
Fiel	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		01/03/18 07:11		
Fi	eld Clothing and	PPE (as applicable):	Sa	ample Containers:				
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01		All sample containe	ers made of HDPF	or polypropylene. Samples are		
J	Field crew has	not used fabric softener on clothing	J	not stored in containers mad				
7		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	J	Caps are lined or ur	nlined and made	of HDPE or polypropylene		
7	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appli	icable):			
Field Equipment:		For personnel in direct contact with samples and/or sampling equipment, wet weather gear made of Vinyl, polyurethane, PVC,						
J	✓ No Teflon® containing materials on-site			latex or rubber-coa	ated materials only			
>	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Eq	quipment Decontami	nation:			
7	Products No plastic clipboards, binders, or spiral hard cover notebooks		V	"PFAS-free" water o	on-site for decon	tamination of sample equipment		
7			Alconox and Liquinox to be used as decontamination materials					
	on-site		Fo	ood Considerations:				
J	No adhesives (Post-it® Notes) on-site		No food or drink or	n-site with except	ion of bottled water and/or		
>	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	J	hydration drinks (i.e consumption only i		Powerade) that is available for a		
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	actio th PFA	n shall include removal	of noncompliance	items from the investigation area or		
	Describe the no	ncompliance issues (include personnel not in compliand	ce) and	d action/outcome of no	ncompliance:	Signature:		
Notice		./	0		Name (print): Kyle Keegan			
QA/	QC'd by:	Thomas W. Hensel Thomas 2.	Jens	el	QA/QC Date:	1/5/2018		



Proj	ect Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
Con	tract:	FA8903-16-D-0027	Tasl	· Order:		0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather			
Site	/Area Name:	AFFF RELEASE AREA 02 and 03	(ten	np./precipitation):		Clear, high 70s	
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		01/04/18 07:20	
Fie	eld Clothing and	l PPE (as applicable):	Sa	mple Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	F22	All sample containe	rs made of HDPE	or polypropylene. Samples are	
J	Field crew has	not used fabric softener on clothing	J	not stored in contai			
7		not used cosmetics, moisturizers, hand cream, ed products on exposed body parts this morning	V	Caps are lined or unlined and ma		le of HDPE or polypropylene	
J	Field crew has	not applied unacceptable sunscreen or insect	W	et Weather (as appli			
Sia	•		For personnel in direct contact with samples and/or sampling				
	Field Equipment:		equipment, wet weather gear made of Vinyl, polyurethane, PVC, latex or rubber-coated materials only				
J		ontaining materials on-site	Ec	···i-mont Docontami			
J	All sample mat silicon, or polyp	terials made from stainless steel, HDPE, acetate, propylene	EY	uipment Decontamir	nation:		
>	No waterproof field books on site other than Bite in the Bain®		J	"PFAS-free" water o	on-site for decont	amination of sample equipment	
			J	Alconox and Liquino	ox to be used as d	econtamination materials	
J	No plastic clipb on-site	boards, binders, or spiral hard cover notebooks					
_		(FO	od Considerations:			
J		(Post-it® Notes) on-site	_		•	on of bottled water and/or	
J	Coolers filled w packs in posses	with regular ice only. No chemical (blue) ice ession	J	hydration drinks (i.e consumption only ir		Powerade) that is available for	
	compliance issues	e boxes cannot be checked, the Field Manager shall desc is prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit invest	e action	n shall include removal	of noncompliance is	tems from the investigation area or	
	Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: None						
						Name (print): Audrey Yorke	
QA/	QC'd by:	Thomas W. Hensel Thomas 2.	Hen.	ul	QA/QC Date:	1/5/2018	



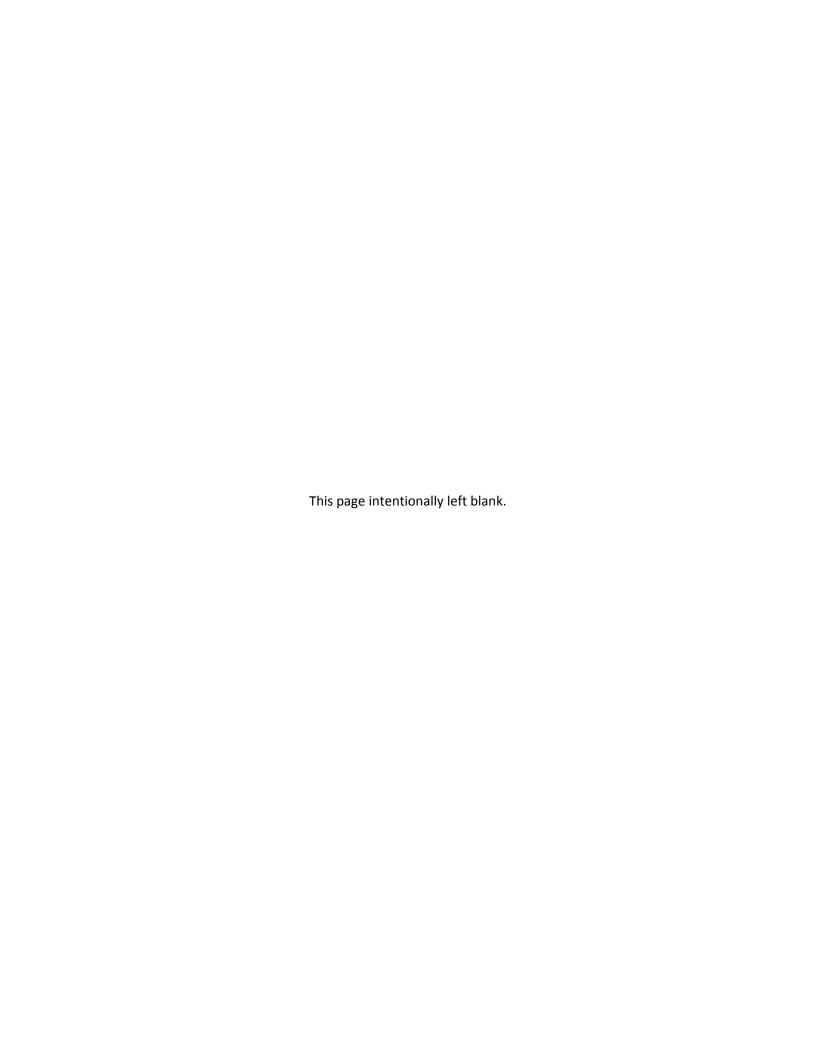
Proj	ect Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
Con	tract:	FA8903-16-D-0027	Tasl	k Order:		0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	ather		0	
Site	/Area Name:	AFFF RELEASE AREA 02	(ten	np./precipitation):		Clear, 46°F	
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		01/05/18 07:20	
Fie	eld Clothing and	d PPE (as applicable):	Sa	ample Containers:			
J	Field crew in c	compliance with Tables 1 and 2, SOP AFW-01	Eg.	All sample container	s made of HDPE	or polypropylene. Samples are	
>	Field crew has	not used fabric softener on clothing	1	not stored in contain	ners made of LD	PE	
V		not used cosmetics, moisturizers, hand cream, ed products on exposed body parts this morning	J	Caps are lined or unl	ined and made	ed and made of HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	Wet Weather (as applicable):			
Fié	Field Equipment:		7	For personnel in direct contact with samples and/or sampling equipment, wet weather gear made of Vinyl, polyurethane, PVC,			
7			latex or rubber-coated materials only				
7	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene			quipment Decontamin			
>	No waterproof field books on-site other than Rite-in-the-Rain® Products			"PFAS-free" water or	n-site for decon	tamination of sample equipment	
7	No plastic clipt	boards, binders, or spiral hard cover notebooks	Alconox and Liquinox to be used as decontamination materials Food Considerations:				
			FO	ood Considerations:			
J	No adhesives ((Post-it® Notes) on-site	_		•	tion of bottled water and/or	
>	Coolers filled w packs in posses	with regular ice only. No chemical (blue) ice ession	 hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area 				
	compliance issues	e boxes cannot be checked, the Field Manager shall descr s prior to commencement of that day's work. Corrective fsite until in compliance. Repeated failure to comply wit investi	e actio th PFA	on shall include removal o	of noncompliance	items from the investigation area or	
	Describe the no	oncompliance issues (include personnel not in complianc	:e) and	d action/outcome of non-	compliance:	Signature:	
		None	Name (print): Audrey Yorke				
QA/	QC'd by:	Thomas W. Hensel Thomas 25. 3	Lena	el a	QA/QC Date:	1/10/2018	



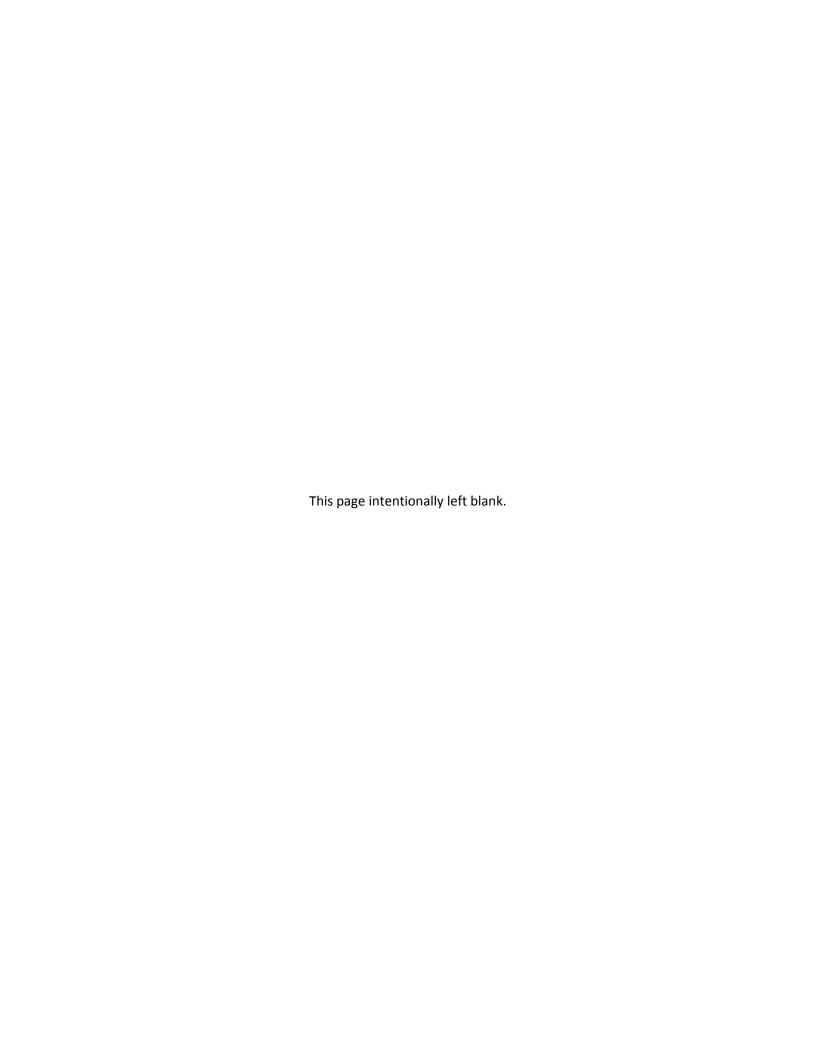
Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:		775303101.0009			
Cont	tract:	FA8903-16-D-0027	Task	Order:		0004		
Insta	allation:	DAVIS - Davis-Monthan AFB	Wea	ther				
Site	/Area Name:	AFFF RELEASE AREA 02	(tem	np./precipitation):		Clear, 46°F		
Field	d Manager:	Kyle Keegan - Geologist	Date	e and Time:		01/06/18 07:10		
Fie	eld Clothing and I	PPE (as applicable):	Sa	mple Containers:				
J	Field crew in co	mpliance with Tables 1 and 2, SOP AFW-01	¥	All sample containe	rs made of HDPE or polypropylene. Samples are			
4	Field crew has n	ot used fabric softener on clothing		not stored in contai	<u> </u>			
¥		ot used cosmetics, moisturizers, hand cream, or oducts on exposed body parts this morning	☐ Caps are lined or unlined and made of HDPE or polypropylene			HDPE or polypropylene		
4	Field crew has n	ot applied unacceptable sunscreen or insect	W	et Weather (as appli	-			
Fie	Field Equipment:		4	•		amples and/or sampling f Vinyl, polyurethane, PVC, latex		
✓ No Teflon® containing materials on-site		_	or rubber-coated m	-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
4	All sample mate silicon, or polyp	rials made from stainless steel, HDPE, acetate,	Equipment Decontamination:					
			J	"PFAS-free" water o	on-site for deconta	mination of sample equipment		
4	No waterproof t Products	field books on-site other than Rite-in-the-Rain®						
J	No plastic clipboards, binders, or spiral hard cover notebooks on- site			Alconox and Liquinox to be used as decontamination materials Food Considerations:				
_		. 1.0.1.	FO	od Considerations:				
4	No adnesives (P	ost-it® Notes) on-site	No food or drink on-site with exception of bottled water and/or					
¥	Coolers filled wi in possession	th regular ice only. No chemical (blue) ice packs	V	hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area				
	compliance issues	boxes cannot be checked, the Field Manager shall descr prior to commencement of that day's work. Corrective ite until in compliance. Repeated failure to comply with investi	action	n shall include removal S sample protocols will	of noncompliance it	ems from the investigation area or		
	Describe the nor	ncompliance issues (include personnel not in compliance	e) and	action/outcome of no	ncompliance:	Signature:		
	None							
						Name (print): Audrey Yorke		
QA/0	QC'd by:	Thomas W. Hensel Thomas J. Hen	, orde	l	QA/QC Date:	1/10/2018		



Proj	ject Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Project Number:			775303101.0009	
Con	tract:	FA8903-16-D-0027	Tasl	k Order:		0004	
Inst	allation:	DAVIS - Davis-Monthan AFB	Wea	- ather			
Site	/Area Name:	Basewide	(ten	np./precipitation):		Warm and Windy	
Fiel	d Manager:	Samantha Sargent - Geologist	Date	e and Time:		1/29/2018 8:05	
Fi	eld Clothing and	PPE (as applicable):	Sa	ımple Containers:			
J	Field crew in co	ompliance with Tables 1 and 2, SOP AFW-01	EST	All sample containe	ers made of HDPE	or polypropylene. Samples are	
J	Field crew has	not used fabric softener on clothing	J	not stored in contai	iners made of LDF	PE	
7		not used cosmetics, moisturizers, hand cream, d products on exposed body parts this morning	☑ Caps are lined or unlined and made		nlined and made o	of HDPE or polypropylene	
J	Field crew has repellant	not applied unacceptable sunscreen or insect	W	et Weather (as appli	cable):		
Fic	Field Equipment:		For personnel in direct contact with samples and/or sampling equipment, wet weather gear made of Vinyl, polyurethane, PVC,				
J	✓ No Teflon® containing materials on-site			latex or rubber-coa	1		
7	All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene		Eq	uipment Decontamii	nation:		
7	No waterproof	field books on-site other than Rite-in-the-Rain®	"PFAS-free" water on-site for decon		tamination of sample equipment		
7	No plastic clipboards, binders, or spiral hard cover notebooks		Alconox and Liquinox to be used as decontamination materials				
	on-site		Fo	ood Considerations:			
J	No adhesives (Post-it® Notes) on-site	No food or drink on-site with exception of bottled water and/or				
>	Coolers filled w	vith regular ice only. No chemical (blue) ice ssion	J	hydration drinks (i.e consumption only i		Powerade) that is available for a	
	compliance issues	boxes cannot be checked, the Field Manager shall desc prior to commencement of that day's work. Corrective site until in compliance. Repeated failure to comply wit invest	actio h PFA	n shall include removal	of noncompliance i	tems from the investigation area or	
Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance: None Signature:							
						Name (print): Samantha Sargent	
QA/	'QC'd by:	Thomas W. Hensel Thomas 2. J	lena	l	QA/QC Date:	1/30/2018	



APPENDIX B-3 TAILGATE SAFETY MEETING REPORTS





Pro	ject Name:	Site Inspection of AFFF Environmental Progra		Pro	ject Number:		7753	03101.0009.0300	
Cor	ıtract:	FA8903-16-E	J-0027	Tae	k Order:			0004	
	allation:	DAVIS - Davis-Mo			e and Time:		1	0/10/17 14:15	_
Fiel	d Manager Name:	Kyle Keeg		Site	Health and Safety Officer	(HSO):	(Gwen Minnier	_
Saf	ety Meeting Type:			Unsc	cheduled Tailgate Safety Meetin	9			
			Order	of B	usiness				
_	Topics Discussed (chec	k all that apply):		_					
✓	Site History/Site Layout			✓	PPE Required/PPE Used	D-#: D	. d		
✓	Scope of Work			✓	Define PPE Levels, Donning	_		۵)	
✓	Personnel Responsibilitie			✓	Physical Hazards and Control Decontamination Procedures				
✓	Medical Surveillance Re Training Requirements	quirements							
✓ ✓	Safe Work Practices			~	General Emergency Procedulindicate)	ures (e.g., local	JOHS OF AIT HOL	TIS and what I of 2 diasts	
✓	Logs, Reports, Recordke	eening			Site/Regional Emergency Pr	ocedures (e a	earthquake re	esnonse tynhoon resnonse	۵
V	Sanitation and Illumination			V	etc.)	oocaarco (c.g.	cartifquanc re	ээроноо, турноон тооронос	٠,
V	Air Surveillance Type an			-	Medical Emergency Respon	se Procedures	(e.g., exposu	re control precautions,	
V	Monitoring Instruments a	and Personal Monitoring		~	location of first aid kit, etc.)			•	
\checkmark	Action Levels			V	Hazardous Materials Spill Pr	ocedures			
\checkmark	Accident Reporting Proc	edures		V	Applicable SOPs (e.g., Hear	ing Conservation	on Program, S	Safe Driving, etc.)	
V		ess, buddy system, work zones	, security,	~	Injury/Illness Reporting Proce				
	communications)			V	Route to Hospital and Medic	al Care Provide	er Visit Guidel	lines	
✓		near misses" including work cr avoid similar occurrences	hazards and effects)						
✓	Engineering Controls			1	Review AHAs with all parties	engaged in the	e activity (EM	-385 1-1, para 01.A.13.b)	_
Safe	ty suggestions by site worke	ers:			Driving equipme	ent on base			
Actio	on taken on previous sugges	stions:			Drive slowly, u	se spotter			
Injuries/accidents/personnel changes since previous meeting:					None	9			
	ervations of unsafe work pra eloped since previous meeting	actices/conditions that have ng:			None	9			
	ation of (or changes in the lo	ocations of) evacuation			Front G	ate			
Othe	er Safety Topics Discussed:				NA				
Addi	tional comments:				None	9			
	Attendee sign	atures below indicate acknowle	dgment of the information	and wi	illingness to abide by the proced	ures discussed	during this saf	ety meeting.	
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Compan	ıy	Signature	
	Kyle Keegan	AmecFW	7875						
	Alex Yiannakakis	AmecFW	ulgaz is						
	Audrey Yorke	AmecFW	hat						
	Chad Cahill	Yellow Jacket Drilling	A STATE OF THE STA						
	Walter Saylors	Yellow Jacket Drilling	week the						
	Lloyd Pena	Yellow Jacket Drilling	Joseph .						
	Cody Gabala	Yellow Jacket Drilling	CAME						
	Tony Valentine	Yellow Jacket Drilling							
	Meeting Condu	cted By (print):		omna	ny and Title	<u> </u>	6:	nnatura	
	Kyle Ke	, , , , , , , , , , , , , , , , , , ,			/ - Geologist	7	Signature		
QA/	QC'd by: Thomas W. F	Hensel James	2. Hensel			QA/QC D		2/23/2018	_



							Wileelei		
Pro	ject Name:	Site Inspection of AF Environmental Prog		Pro	ject Number:		775303101.0009.0300		
Con	ntract:	FA8903-16	-D-0027	- Tas	k Order:		0004		
	allation:	DAVIS - Davis-N		-	e and Time:		10/12/17 09:25		
Fiel	d Manager Name:	Kyle Ke	egan	Site	Health and Safety Office	r (HSO):	Gwen Minnier		
Safe	ety Meeting Type:				ılar/Daily Tailgate Safety Meet	ing			
			Orde	er of B	usiness				
X	Topics Discussed (check Site History/Site Layout Scope of Work Personnel Responsibilitie Medical Surveillance Req Training Requirements Safe Work Practices Logs, Reports, Recordke Sanitation and Illumination Air Surveillance Type and Monitoring Instruments at Action Levels Accident Reporting Proce Site Control (visitor acces communications)	es quirements eeping n d Frequency nd Personal Monitoring	es, security,		indicate) Site/Regional Emergency Fetc.) Medical Emergency Respolocation of first aid kit, etc.) Hazardous Materials Spill FApplicable SOPs (e.g., Healinjury/Illness Reporting Pro	trols (e.g., overhead utiles for Personnel and Edures (e.g., locations of Procedures (e.g. earthouse Procedures (e.g., earthouse Procedures (e.g., earthouse Procedures (e.g., earthouse Procedures earing Conservation Procedures	quipment f air horns and what 1 or 2 blasts quake response, typhoon response, exposure control precautions, gram, Safe Driving, etc.)		
J	Discussion of previous "n	near misses" including work avoid similar occurrences	crew suggestions to	1	Route to Hospital and Medi Hazard Analysis of Work T hazards and effects)		al, biological and energy health		
1	Engineering Controls	2234		1	,	es engaged in the activ	ity (EM-385 1-1, para 01.A.13.b)		
Safe	ety suggestions by site worke	ers:			Hot v				
	on taken on previous sugges		Make sure we have 30 i		ire watch with any hot work. Ha		sher next to work area and if needed		
Injur mee	ies/accidents/personnel char ting:	nges since previous			Nor	ne			
	ervations of unsafe work praceloped since previous meetin				Nor	ne			
	ation of (or changes in the loc es/safe refuge areas:	cations of) evacuation			Craycro	ft Gate			
Othe	er Safety Topics Discussed:				N	A			
Addi	itional comments:				No	ne			
	Attendee signa	tures below indicate acknowl	edgment of the information	n and wi	llingness to abide by the proce	edures discussed during	this safety meeting.		
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature		
	Kyle Keegan	AmecFW	781z						
	Lloyd Pena	YJD	- selfer grade						
	Cody Gabala	YJD	MA-ME						
	Tony Valentine	YJD	Supplied Addition of the Control of						
Meeting Conducted By (print):				Company and Title Signature			Signature		
Kyle Keegan			А	AmecFW	/ - Geologist	1181	1815		
QA/	QC'd by: Thomas W. H	ensel Thomas	2. Hensel			QA/QC Date:	2/23/2018		



							Wilcold!		
Pro	ject Name:	Site Inspection of AF Environmental Prog		Pro	ject Number:		775303101.0009.0300		
Cor	tract:	FA8903-16	5-D-0027	_ Tas	k Order:		0004		
Inst	allation:	DAVIS - Davis-I	Monthan AFB	Dat	e and Time:		10/13/17 12:04		
Fiel	d Manager Name:	Kyle Ke	egan	Site	Health and Safety Officer	(HSO):	Gwen Minnier		
Saf	ety Meeting Type:		Regular/Daily Tailgate Safety Me			ng			
			Orde	er of B	Business				
	Topics Discussed (check	all that apply):		_					
1	Site History/Site Layout			1	Define PPE Levels, Donning, Doffing Procedures				
1	Scope of Work			1					
1	Personnel Responsibilities			1	Physical Hazards and Contro	ols (e.g., overhead	utility lines)		
1	Medical Surveillance Requ	irements		1	Decontamination Procedures	s for Personnel and	Equipment		
1	Training Requirements			1		ures (e.g., locations	.g., locations of air horns and what 1 or 2 blasts		
1	Safe Work Practices			_	indicate)				
1	Logs, Reports, Recordkee	ping		1		ocedures (e.g. eart	hquake response, typhoon respons	зe,	
1	Sanitation and Illumination			_	etc.)				
1	Air Surveillance Type and	Frequency		1		se Procedures (e.g	., exposure control precautions,		
1	Monitoring Instruments and			location of first aid kit, etc.)					
1	Action Levels		1	Hazardous Materials Spill Pr					
1	Accident Reporting Proced	dures		1	Applicable SOPs (e.g., Hear	-	rogram, Safe Driving, etc.)		
1	Site Control (visitor access	s, buddy system, work zon	es, security,	J	Injury/Illness Reporting Proc				
	communications)			1	Route to Hospital and Medic				
1	Discussion of previous "ne correct work practices to a	crew suggestions to	1	Hazard Analysis of Work Ta hazards and effects)	sks (chemical, phys	sical, biological and energy health			
1	Engineering Controls			1	Review AHAs with all parties	s engaged in the ac	tivity (EM-385 1-1, para 01.A.13.b)		
Safe	ty suggestions by site workers	s:			Over head	hazards			
Actio	on taken on previous suggesti	ons:	Check for hazard before		ng with any over head equipmer assess any hazards that come u		ong with standard PPE. Stop work a perations	nd	
	ies/accidents/personnel chanç ting:	ges since previous			None	е			
	ervations of unsafe work pract sloped since previous meeting				None	9			
	ation of (or changes in the locales/safe refuge areas:	ations of) evacuation	Craycroft Gate						
	er Safety Topics Discussed:		NA						
Addi	tional comments:		None						
	Attendee signatu	ures below indicate acknow	ledgment of the informatio	n and w	illingness to abide by the proced	dures discussed duri	ng this safety meeting.	_	
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature	_	
	rationado Hame (print)	company	· ·		/ titoridos riamis (print)	company	o ignaturo	_	
	Kyle Keegan	AmecFW	78/c						
	Lloyd Pena	YJD	J. 1997						
	Tony Valentine	YJD	-X						
	Cody Gabala	YJD	Africa .						
	Audrey Yorke	AmecFW	197						
	Manting Court	nd Dy (prict)		Co	ay and Title		Signature		
	Meeting Conducte	· ,			ny and Title	1-71-1	Signature 7 / 5		
	Kyle Kee	gan		AmecFW	/ - Geologist	17.	(6)		
QA/	QC'd by: Thomas W. He	ensel Thomas	2. Hensel			QA/QC Date	: 2/23/2018		



							Wileelei		
Pro	ject Name:	Site Inspection of AF Environmental Prog		Pro	ject Number:		775303101.0009.0300		
Con	ntract:	FA8903-16	j-D-0027	_ Tas	k Order:	-	0004		
	allation:		DAVIS - Davis-Monthan AFB		e and Time:		10/14/17 06:42		
	d Manager Name:	Kyle Ke	egan	_	Health and Safety Officer	· · ·	Gwen Minnier		
Safe	ety Meeting Type:				ılar/Daily Tailgate Safety Meetir	ng			
	Topics Discussed (check		Orde	er of B	usiness				
	Site History/Site Layout Scope of Work Personnel Responsibilitie Medical Surveillance Req Training Requirements Safe Work Practices Logs, Reports, Recordke	quirements		\ \ \ \ \	Define PPE Levels, Donning, Doffing Procedures Physical Hazards and Controls (e.g., overhead utility lines) Decontamination Procedures for Personnel and Equipment General Emergency Procedures (e.g., locations of air horns and what 1 or 2 blasts indicate) Site/Regional Emergency Procedures (e.g., earthquake response, typhoon response)				
1	✓ Sanitation and Illumination✓ Air Surveillance Type and Frequency			J	Medical Emergency Respon location of first aid kit, etc.)	se Procedures (e.g., ex	xposure control precautions,		
✓ Monitoring Instruments and Personal Monitoring ✓ Action Levels ✓ Accident Reporting Procedures ✓ Site Control (visitor access, buddy system, work zones, secommunications)				* * * * *	ram, Safe Driving, etc.) Buidelines , biological and energy health				
correct work practices to avoid similar occurrences				2	hazards and effects)	and and in the pativity	//FM 205 1.1 mars 01.4.12.h)		
				4	Critte		(EM-385 1-1, para 01.A.13.b)		
	on taken on previous sugges		Check under equipr	ment and	I supplies for critters hiding before		Do not touch any of the critters.		
Injur mee	ries/accidents/personnel char	nges since previous			None	e	<u> </u>		
	ervations of unsafe work praceloped since previous meetin				None	е			
	ation of (or changes in the loc es/safe refuge areas:	cations of) evacuation			Craycroft	Gate			
Othe	er Safety Topics Discussed:				NA				
Addi	itional comments:				None	е			
	Attendee signa	tures below indicate acknow	ledgment of the information	n and wi	llingness to abide by the proced	dures discussed during th	nis safety meeting.		
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature		
	Kyle Keegan	AmecFW	78/2						
	Tony Valentine	YJD	The Same						
	Lloyd Pena	YJD	Helger-						
	Cody Gabala	YJD	(MAD)	1					
	Audrey Yorke	AmecFW	li de la companya de						
	Meeting Conduc	ted By (print):	,	Compar	y and Title		Signature		
	Kyle Kee	egan	ļ ,	AmecFW	- Geologist	11/2	<u>5</u>		
QA/	/QC'd by: Thomas W. H	lensel Thomas	2. Spensel			QA/QC Date:	2/23/2018		



Pro	iect Name:	Site Inspection of AF		Pro	ject Number:		7753031	01.0009.0300			
		Environmental Prog	grams Worldwide	_	,						
	tract:	FA8903-16		_	k Order:			0004			
	allation:	DAVIS - Davis-			e and Time:	(1150):		5/17 06:46			
	d Manager Name: ety Meeting Type:	Kyle Ke	egan	_	Health and Safety Officer	· · · · —	Gwe	n Minnier			
Sait	ety meeting Type.		Orde	_	usiness	ig					
	Tanias Dissussed (sheet	call that apply).	Orde	ei Oi B	usiness						
1	Topics Discussed (check Site History/Site Layout	сан тнагарргуу.		J	PPE Required/PPE Used						
J	Scope of Work			J	Define PPE Levels, Donning	ı. Doffina Procedı	ures				
1	Personnel Responsibilitie	S		J	Physical Hazards and Contr	,, ,					
1	Medical Surveillance Req			1	Decontamination Procedures for Personnel and Equipment						
1	Training Requirements			J	General Emergency Proced	ency Procedures (e.g., locations of air horns and what 1 or 2 blasts					
1	Safe Work Practices			-	indicate)						
1	Logs, Reports, Recordke	eping	Site/Regional Emergency Pr	rocedures (e.g. ea	arthquake respo	onse, typhoon response,					
Sanitation and Illumination					etc.)						
☑ Air Surveillance Type and Frequency				1	Medical Emergency Respon	se Procedures (e	e.g., exposure c	ontrol precautions,			
✓ Monitoring Instruments and Personal Monitoring				-	location of first aid kit, etc.)						
1	✓ Action Levels			1	Hazardous Materials Spill Pi						
1	Accident Reporting Proce	edures		1							
1		ss, buddy system, work zon	es, security,	J	Injury/Illness Reporting Proc						
	communications)			1	·	dical Care Provider Visit Guidelines					
Discussion of previous "near misses" including work crew suggestions to correct work practices to avoid similar occurrences				1	Hazard Analysis of Work Ta hazards and effects)	sks (chemical, ph	nysical, biologica	al and energy health			
					Review AHAs with all parties	s engaged in the	activity (EM-385	1-1, para 01.A.13.b)			
Safe	ty suggestions by site worke	rs:			Dust and pa	rticulates					
Actic	on taken on previous sugges	tions:	Wear dust masks to p	revent in	halation. Wear safety glasses. operati		ear of dust produ	ced by drilling and other			
Injuri meet	ies/accidents/personnel char ting:	nges since previous			Non	е					
	ervations of unsafe work practions of unsafe work practions meeting				Non	e					
	tion of (or changes in the loces/safe refuge areas:	cations of) evacuation			Craycroft	Gate					
Othe	r Safety Topics Discussed:		-		NA						
Addi	tional comments:				Non	e					
	Attendee signa	tures below indicate acknow	ledgment of the informatio	n and wi	llingness to abide by the proced	dures discussed di	uring this safety	meeting.			
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company		Signature			
	. ,		-		/ mondo ramo (prim)	- Company		o.g.i.atai o			
	Kyle Keegan	AmecFW	78/5								
	Cody Gabala	YJD	Company of the Compan								
	Lloyd Pena	YJD	10,00	90							
	Tony Valentine	YJD	STATE OF THE PARTY								
				\dashv							
	Monting Condu	tod By (print):		Comme	and Title		Sime -	turo			
	Meeting Conduc	teu by (μιπι):		compan	ny and Title	250	Signa	uue			
_	Kyle Kee	egan	,	AmecFW	- Geologist	71	115				
QA/	QC'd by: Thomas W. H	ensel There	a S. Spensel	1		QA/QC Da	ite:	2/23/2018			



							Wilectel		
Proj	ject Name:	Site Inspection of AFFF Environmental Program		Proj	ject Number:		775303101.0009.0300		
Con	tract:	FA8903-16-D	-0027	- Tas	k Order:		0004		
	allation:	DAVIS - Davis-Mo		_	e and Time:	-	10/16/17 06:37		
Fiel	d Manager Name:	Kyle Keeg	an	Site	Health and Safety Officer	(HSO):	Gwen Minnier		
Safe	ety Meeting Type:			Regu	lar/Daily Tailgate Safety Meeti	ing			
			Orde	er of B	usiness				
> > > > > > > > > > > > > > > > > > >	Topics Discussed (check Site History/Site Layout Scope of Work Personnel Responsibilities Medical Surveillance Requ Training Requirements Safe Work Practices Logs, Reports, Recordkee Sanitation and Illumination Air Surveillance Type and Monitoring Instruments and	sirements eping Frequency			indicate) Site/Regional Emergency Petc.) Medical Emergency Respondence of first aid kit, etc.)	rols (e.g., overhead uties for Personnel and Edures (e.g., locations of Procedures (e.g. earthquise Procedures (e.g., earthquise (e.g.			
7	Action Levels Accident Reporting Proced Site Control (visitor access communications)	dures s, buddy system, work zones	security,	7	Hazardous Materials Spill F Applicable SOPs (e.g., Hea Injury/Illness Reporting Pro Route to Hospital and Medi	ring Conservation Procedures			
J	Discussion of previous "ne correct work practices to a	ear misses" including work cre avoid similar occurrences	ew suggestions to	1	Hazard Analysis of Work Ta hazards and effects)	asks (chemical, physic	al, biological and energy health		
1	Engineering Controls			J	Review AHAs with all partie	es engaged in the activi	ity (EM-385 1-1, para 01.A.13.b)		
Safe	ty suggestions by site worker	s: 			Heat an	d Sun			
	on taken on previous suggesti	_	Take b	reaks fro	om the sun when possible. Drii	nk water and wear PFAS	S FREE sun screen.		
Injuri meet	ies/accidents/personnel chang ting:	ges since previous			Nor	ne			
	ervations of unsafe work pract loped since previous meeting				Nor	ne			
	ation of (or changes in the local es/safe refuge areas:	ations of) evacuation	Craycroft Gate						
Othe	r Safety Topics Discussed:	_			N/	<u> </u>			
Addi	tional comments:				Nor				
	Attendee signati	1	gment of the information	n and wi	llingness to abide by the proce	dures discussed during	this safety meeting.		
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature		
	Kyle Keegan	AmecFW	78/c						
	Cody Gabala	YJD	Contain 1						
	Lloyd Pena	YJD	Maffeet						
	Tony Valentine	YJD	少到美宝。						
	Meeting Conducte			-	y and Title	781	Signature		
	Kyle Kee			anect W	- Geologist	C 11/2	·/		
QA/	QC'd by: Thomas W. He	ensel Thomas	S. Spensel			QA/QC Date:	2/23/2018		



							Milecter			
Pro	ject Name:	Site Inspection of AFFF Environmental Program		Pro	ject Number:		775303101.0	0009.0300		
Cor	ntract:	FA8903-16-D	-0027	_ Tas	k Order:		000	14		
	tallation:	DAVIS - Davis-Mo		_	e and Time:		10/16/17	11:06		
Fiel	d Manager Name:	Garrett Tal	oor	Site	Health and Safety Officer	(HSO):	Gwen M	linnier		
Saf	ety Meeting Type:			Regi	ular/Daily Tailgate Safety Meeti	ng				
			Orde	er of B	Business					
	Topics Discussed (check	all that apply):								
1	Site History/Site Layout			1	PPE Required/PPE Used					
1	Scope of Work			1	Define PPE Levels, Donning	g, Doffing Procedu	ıres			
1	Personnel Responsibilities			1	Physical Hazards and Cont	vsical Hazards and Controls (e.g., overhead utility lines)				
1	Medical Surveillance Requ	irements		1	Decontamination Procedure	es for Personnel a	nd Equipment			
1	Training Requirements			J	General Emergency Proced	lures (e.g., locatio	ns of air horns and	what 1 or 2 blasts		
1	Safe Work Practices			indicate)						
1	Logs, Reports, Recordkee	ping		1	Site/Regional Emergency P	rocedures (e.g. ea	arthquake response	e, typhoon response,		
1	Sanitation and Illumination			_	etc.)					
1	Air Surveillance Type and	Frequency		1	Medical Emergency Respon	nse Procedures (e	g., exposure contr	rol precautions,		
1	Monitoring Instruments and	d Personal Monitoring		_	location of first aid kit, etc.)					
1	Action Levels			1	Hazardous Materials Spill F	rocedures				
1	Accident Reporting Procedures			1	Applicable SOPs (e.g., Hea	-	Program, Safe Dri	ving, etc.)		
1		s, buddy system, work zones	security,	1	Injury/Illness Reporting Pro					
	communications)			1	Route to Hospital and Medi	cal Care Provider	Visit Guidelines			
1	Discussion of previous "ne correct work practices to a	ear misses" including work cre	ew suggestions to	1	Hazard Analysis of Work Ta hazards and effects)	asks (chemical, ph	nysical, biological ar	nd energy health		
1	Engineering Controls	avoid sirmiar obsarrenoes		1	Review AHAs with all partie	s engaged in the	activity (EM-385 1-1	1, para 01.A.13.b)		
Safe	ety suggestions by site workers	s:			Slips, trip	os, falls				
Actio	on taken on previous suggesti	ons:			Make sure wo	rk area clear				
	ies/accidents/personnel chang	_								
	ting:	-			N/					
	ervations of unsafe work pract eloped since previous meeting				NA.	\				
	ation of (or changes in the locales/safe refuge areas:	ations of) evacuation	Base OPS Building							
Othe	er Safety Topics Discussed:		NA							
Addi	itional comments:	-	NA							
	Attendee signatu	ures below indicate acknowled	gment of the information	n and w	illingness to abide by the proce	dures discussed di	uring this safety mee	eting.		
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company		Signature		
	/ atoridos riamo (print)	Company			/ ittoriado riamo (print)	oopay		o.g.rataro		
	Garrett Tabor	AmecFW	165-20-	2						
	Eric Olsen	YJD	<u> </u>							
	Wally Sailors	YJD	my fire							
	Sean Cardigan	YJD	- Sizelow							
			72/							
	Meeting Conducte	ed By (print):		Compa	ny and Title		Signature)		
	Garrett Ta	abor		AmecFV	/ - Geologist	-	CH TO			
			1 1 1							
QA/	QC'd by: Thomas W. He	ensel Thomas	2. Spensel			QA/QC Da	te: 2/	/23/2018		



Project Name:	Site Inspection of AFF Environmental Progra		Pro	ject Number:		775303101.0009.0300
Contract:	FA8903-16-I	0-0027	Tas	k Order:		0004
Installation:	DAVIS - Davis-Mo		-	e and Time:		10/17/17 06:45
Field Manager Name:	Kyle Kee	gan	Site	Health and Safety Officer	(HSO):	Gwen Minnier
Safety Meeting Type:			Regu	ılar/Daily Tailgate Safety Meeti	ng	
		Orde	er of B	usiness		
Topics Discussed (check all that	apply):					
✓ Site History/Site Layout			1	PPE Required/PPE Used		
Scope of Work			1	Define PPE Levels, Donning		
Personnel Responsibilities			1	Physical Hazards and Cont	rols (e.g., overhea	ad utility lines)
✓ Medical Surveillance Requirement	its		1	Decontamination Procedure	es for Personnel a	and Equipment
Training Requirements			J		dures (e.g., location	ons of air horns and what 1 or 2 blasts
✓ Safe Work Practices				indicate)		
Logs, Reports, Recordkeeping			1		rocedures (e.g. e	earthquake response, typhoon response,
Sanitation and Illumination				etc.)		
Air Surveillance Type and Freque	-	Medical Emergency Response Production of first aid kit, etc.)			nse Procedures (e.g., exposure control precautions,
Monitoring Instruments and Person	onal Monitoring			,		
Action Levels		1	Hazardous Materials Spill P		5 0 (5)	
Accident Reporting Procedures			J		-	n Program, Safe Driving, etc.)
Site Control (visitor access, budd	s, security,	7	Injury/Illness Reporting Pro		Visit Cuidelines	
communications)			1	Route to Hospital and Medi		
Discussion of previous "near miss correct work practices to avoid si	rew suggestions to	1	hazard Analysis of Work Ta hazards and effects)	asks (chemical, pi	hysical, biological and energy health	
☑ Engineering Controls			J	,	s engaged in the	activity (EM-385 1-1, para 01.A.13.b)
Safety suggestions by site workers:				Dus	st	
Action taken on previous suggestions:	•	Wear du	ıst mask	s and try to work with the wind	to your back so du	ust is blown away from you.
injuries/accidents/personnel changes sind	ce previous			Nor	ne	
3	•					
Observations of unsafe work practices/co developed since previous meeting:	nditions that have			Nor	ne	
Location of (or changes in the locations or outes/safe refuge areas:	f) evacuation			Craycrof	t Gate	
Other Safety Topics Discussed:	•			NA	\	
Additional comments:	•			Nor	ne	
Attendee signatures be	low indicate acknowle	dgment of the information	n and wi	Ilingness to abide by the proce	dures discussed d	luring this safety meeting.
Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature
" '				т шетте тетте (ртш.)		- Cig. saturd
Kyle Keegan	AmecFW	76/2-				
Tony Valentine	YJD	To the start				
Lloyd Pena	YJD	Asp-	:			
Walter Saylors	YJD	hen the				
Dennis Heyer A	geiss/AFCEC	The in Pile-				
Meeting Conducted By (print):		Compar	ny and Title		Signature
Kyle Keegan		F	AmecFW	/ - Geologist	7	115
	و در	2. Hensel			QA/QC Da	ate: 2/23/2018



							WHEELEI		
Proj	ect Name:	Site Inspection of AFFF R Environmental Programs		Proj	ect Number:		775303101.0009.0300		
Con	tract:	FA8903-16-D-0	027	- Tas	k Order:	-	0004		
	allation:	DAVIS - Davis-Mont		_	and Time:		10/18/17 06:45		
Field	d Manager Name:	Kyle Keegar	1	Site	Health and Safety Officer	(HSO):	Gwen Minnier		
Safe	ety Meeting Type:			Regu	lar/Daily Tailgate Safety Meeti	ing			
			Orde	er of B	usiness				
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Topics Discussed (check Site History/Site Layout Scope of Work Personnel Responsibilities Medical Surveillance Requ Training Requirements Safe Work Practices Logs, Reports, Recordkee Sanitation and Illumination Air Surveillance Type and Monitoring Instruments an Action Levels Accident Reporting Proceed	eping Frequency d Personal Monitoring			indicate) Site/Regional Emergency Petc.) Medical Emergency Respondential Em	rols (e.g., overhead utiles for Personnel and Edures (e.g., locations of Procedures (e.g. earthquise Procedures (e.g., earthquise (e.g.,	quipment f air horns and what 1 or 2 blasts uake response, typhoon response, exposure control precautions,		
J	communications)	s, buddy system, work zones, s ear misses" including work crev	-	J	Injury/Illness Reporting Proc Route to Hospital and Medic	cal Care Provider Visit	Guidelines al, biological and energy health		
J	correct work practices to a		saggestions to	1	hazards and effects)				
1	Engineering Controls			J	•		ty (EM-385 1-1, para 01.A.13.b)		
	ty suggestions by site worker	_	Use seethers or	m al aluissa	Driving o		a varieties and deive asfali.		
	n taken on previous suggesti es/accidents/personnel chan	_	Ose spotters at	na anve	slowly. Watch for pedestrians		e your time and drive salely.		
neet	ing: ervations of unsafe work prac	ticos/conditions that have			, , , , , , , , , , , , , , , , , , ,				
	loped since previous meeting				Nor	ne			
	tion of (or changes in the local s/safe refuge areas:	ations of) evacuation	Craycroft Gate						
Othe	r Safety Topics Discussed:	<u> </u>			NA .	<u> </u>			
Addit	tional comments:				Nor				
	Attendee signati	ures below indicate acknowledge	ment of the information	n and wi	llingness to abide by the proce	dures discussed during	this safety meeting.		
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature		
	Kyle Keegan	AmecFW	78/2						
	Walte Saylors	YJD	(my the	-					
	Lloyd Pena	YJD	-						
	Tony Valentine	YJD	7 4						
	Meeting Conducte	ed By (print):	•	Compan	y and Title		Signature		
	Kyle Kee	gan	A	AmecFW	- Geologist	781	\$		
QA/	QC'd by: Thomas W. He	ensel Thomas	2. Spensel	7		QA/QC Date:	2/23/2018		



Project Name:	Site Inspection of AFFF Release Areas Environmental Programs Worldwide	Pro	oject Number:		775303101.0009.0300			
Contract:	FA8903-16-D-0027		sk Order:		0004			
Installation:	DAVIS - Davis-Monthan AFB		te and Time:		10/19/17 06:44			
Field Manager Name:	Kyle Keegan		e Health and Safety Officer	(HSO):	Gwen Minnier			
Safety Meeting Type:		Reg	ular/Daily Tailgate Safety Meetir	ng				
		Order of E	Business					
Topics Discussed (check a	ll that apply):							
Site History/Site Layout		1						
Scope of Work		J	es					
Personnel Responsibilities		1	Physical Hazards and Contr	utility lines)				
Medical Surveillance Require	ements	J	Decontamination Procedure	s for Personnel and	d Equipment			
Training Requirements		1	General Emergency Proced	ures (e.g., location	s of air horns and what 1 or 2 blasts			
Safe Work Practices		_	indicate)					
Logs, Reports, Recordkeep	ing	Site/Regional Emergency Procedures (e.g. earthquake response, typhoc						
Sanitation and Illumination			etc.)					
 Air Surveillance Type and Fr 	requency	1		se Procedures (e.ç	g., exposure control precautions,			
Monitoring Instruments and	Personal Monitoring		location of first aid kit, etc.)					
 Action Levels 		1	Hazardous Materials Spill Pi	rocedures				
 Accident Reporting Procedu 	ires	J	Applicable SOPs (e.g., Hear	ring Conservation F	Program, Safe Driving, etc.)			
Site Control (visitor access, communications)	buddy system, work zones, security,	7	, , , ,		isit Guidelines			
Discussion of previous "nea correct work practices to av	r misses" including work crew suggestions	to			rsical, biological and energy health			
Engineering Controls	ora cirrinar occari crisco	1	,	s engaged in the ac	ctivity (EM-385 1-1, para 01.A.13.b)			
Safety suggestions by site workers:			Flying particles	from drilling.				
Action taken on previous suggestion	ns:	Stand bac	ck when clearing the hole. Wear	eye protection and	face when needed.			
njuries/accidents/personnel change meeting:	es since previous		Non	e				
Observations of unsafe work practic developed since previous meeting:	res/conditions that have		Non	e				
Location of (or changes in the locati routes/safe refuge areas:	ions of) evacuation	Craycroft Gate						
Other Safety Topics Discussed:	-		NA					
Additional comments:			None					
Attendee signatur	es below indicate acknowledgment of the info	ormation and w	villingness to ahide by the proces	turae diecuesad dur	ring this safety meeting			
Attendee Name (print)	Company Signat		Attendee Name (print)	Company	Signature			
Attendee Name (print)	. ,		Attendee Name (print)	Company	Oignature			
Kyle Keegan	AmecFW	De PTT De						
Lloyd Pena	YJD /the	# -						
Walter Saylors	YJD WEG	9						
Tony Valentine	YJD	Ž.						
Marting Count	I Dec (a circle)	0	nu and Title	1	Circulatura			
Meeting Conducted	i by (print):	Compa	ny and Title		Signature			
Kyle Keega	an	AmecFV	V - Geologist	17	15			
QA/QC'd by: Thomas W. Hen	sel Thomas 25.4	1 0		QA/QC Date	e: 2/23/2018			



							Wilecter
Pro	ject Name:	Site Inspection of AF Environmental Prog		Pro	ject Number:		775303101.0009.0300
Con	ntract:	FA8903-16	-D-0027	_ Tas	k Order:		0004
Inst	allation:	DAVIS - Davis-N	Monthan AFB	Date	e and Time:		10/24/17 08:37
Fiel	d Manager Name:	Kyle Ke	egan	Site	Health and Safety Officer	(HSO):	Gwen Minnier
Safe	ety Meeting Type:			_	ılar/Daily Tailgate Safety Meeti	ng	
			Orde	er of B	usiness		
***********	Topics Discussed (check Site History/Site Layout Scope of Work Personnel Responsibilitie Medical Surveillance Req Training Requirements Safe Work Practices Logs, Reports, Recordke Sanitation and Illumination Air Surveillance Type and Monitoring Instruments and Action Levels Accident Reporting Processing Pro	es quirements eeping on d Frequency nd Personal Monitoring		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	indicate) Site/Regional Emergency Fetc.)	rols (e.g., overhead utilities for Personnel and Equatures (e.g., locations of Procedures (e.g. earthquass Procedures (e.g., e.g., e.g.)	uipment air horns and what 1 or 2 blasts uake response, typhoon response, xposure control precautions,
J	· -	ss, buddy system, work zon	es, security,	J	Injury/Illness Reporting Pro Route to Hospital and Medi	cedures	
Discussion of previous "near misses" including work crew suggest correct work practices to avoid similar occurrences		crew suggestions to	J	Hazard Analysis of Work Ta hazards and effects)	asks (chemical, physica	l, biological and energy health	
☑ Engineering Controls				1	Review AHAs with all partie	s engaged in the activity	y (EM-385 1-1, para 01.A.13.b)
Safety suggestions by site workers:					Climbing th	ne derek.	
Actio	on taken on previous sugges	tions:	We	ear a har	ness that you are 100% tied of	f at all times while working	ng and climbing.
Injur mee	ies/accidents/personnel char ting:	nges since previous			Nor	ne	
	ervations of unsafe work praceloped since previous meetin				Nor	ne	
	ation of (or changes in the loc es/safe refuge areas:	cations of) evacuation			Craycro	ft Gate	
Othe	er Safety Topics Discussed:				NA	A	
Addi	tional comments:				Nor	ne	
	Attendee signa	tures below indicate acknow	edgment of the information	n and wi	llingness to abide by the proce	dures discussed during t	this safety meeting.
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature
	Kyle Keegan	AmecFW	7815				
	Lloyd Pena	YJD	199,00				
	Tony Valentine	YJD	THE S				
	Cody Gabala	YJD	Call Mr.				
	Noel Garland	AmecFW	vd.Al				
	Meeting Conduc	ted By (print):	1	Compar	ny and Title		Signature
Kyle Keegan					- Geologist	7816	5 .=
QA/	QC'd by: Thomas W. H	lensel Thomas	2. Hensel			QA/QC Date:	2/23/2018



Project Name:	Site Inspection of AFFI Environmental Progra		Pro	ject Number:		775303101.0009.0300		
Contract:	FA8903-16-E)-0027	Tas	k Order:		0004		
Installation:	DAVIS - Davis-Mo		-	e and Time:		10/25/17 06:47		
Field Manager Name:	Kyle Kee	jan	Site	Health and Safety Officer	(HSO):	Gwen Minnier		
Safety Meeting Type:			Regu	ılar/Daily Tailgate Safety Meetin	ng			
		Orde	r of B	usiness				
Topics Discussed (che	ck all that apply):		150	DDE D				
Site History/Site Layout			7	PPE Required/PPE Used	Doffing Dropodure			
Scope of WorkPersonnel Responsibilities	ios		1	Define PPE Levels, Donning Physical Hazards and Control	-			
Personnel ResponsibilitiMedical Surveillance Re			1	Decontamination Procedures		• •		
✓ Training Requirements	oquii omonto					of air horns and what 1 or 2 blasts		
✓ Safe Work Practices			1	indicate)				
Logs, Reports, Records	keeping		J		ocedures (e.g. eart	hquake response, typhoon response,		
 Sanitation and Illuminati 				etc.)				
Air Surveillance Type ar		Medical Emergency Response Proce location of first aid kit, etc.)			se Procedures (e.g	., exposure control precautions,		
Monitoring InstrumentsAction Levels	ruments and Personal Monitoring			Hazardous Materials Spill Pr	rocedures			
✓ Accident Reporting Prod	cedures		1	Applicable SOPs (e.g., Hear		rogram. Safe Driving. etc.)		
Cita Cantral (visitar access buddy system work Tanas accurity			J	Injury/Illness Reporting Proc	-	3,,		
communications)	,, ., ,	, , ,	1	Route to Hospital and Medic		sit Guidelines		
Discussion of previous '	rew suggestions to	1	Hazard Analysis of Work Tanhazards and effects)	sks (chemical, phys	sical, biological and energy health			
☑ Engineering Controls	o avoid sirrillar occurrences		9	· ·	engaged in the act	tivity (EM-385 1-1, para 01.A.13.b)		
Safety suggestions by site work	Blowing dust							
	-	Ke	eep dus	t control up. Try to limit turning i		urning up the soil.		
Action taken on previous sugge	-			oist for dust control when neede				
Injuries/accidents/personnel cha meeting:	anges since previous			None	9			
Observations of unsafe work pr developed since previous meet				None	Э			
Location of (or changes in the loroutes/safe refuge areas:	ocations of) evacuation			Craycroft	Gate			
Other Safety Topics Discussed:	:	NA NA						
Additional comments:		None						
Attendee sign	natures below indicate acknowle	dgment of the information	and wi	llingness to abide by the proced	lures discussed duri	ng this safety meeting.		
Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature		
Kyle Keegan	AmecFW	78/2						
Tony Valentine	YJD	1200						
Cody Gabala	YJD	ledel						
Lloyd Pena	YJD	May						
Noel Garland	AmecFW	142 LL-9						
Alex Yiannakakis	AmecFW	⊕3 ≔-≥511						
Meeting Condu	acted By (print):	0	Compan	ny and Title		Signature		
Kyle K	eegan	А	mecFW	- Geologist	77	15-		
QA/QC'd by: Thomas W.	Hensel Thomas	2. Spensel			QA/QC Date	: 2/23/2018		



							WITEETEL			
Project N	ame:	Site Inspection of AFFF Environmental Program		Pro	ject Number:		775303101.0009.0300			
Contract:	-	FA8903-16-D-	-0027	_ Tas	k Order:		0004			
Installatio		DAVIS - Davis-Mor		Date	e and Time:		10/26/17 06:45			
Field Mar	nager Name:	Kyle Keega	an	Site	Health and Safety Office	r (HSO):	Gwen Minnier			
Safety Me	eeting Type:			Regu	ular/Daily Tailgate Safety Meet	ing				
			Orde	er of B	usiness					
Top	ics Discussed (check	all that apply):								
✓ Site	History/Site Layout			1	PPE Required/PPE Used					
	pe of Work			1	Define PPE Levels, Donnin					
_	sonnel Responsibilities			1	Physical Hazards and Controls (e.g., overhead utility lines)					
	lical Surveillance Requ	irements		1	Decontamination Procedure	es for Personnel and	Equipment			
_	ning Requirements			1	General Emergency Procedures (e.g., locations of air horns and what 1 or 2					
	Work Practices				indicate)					
-	s, Reports, Recordkee	· -		1		Procedures (e.g. eartl	nquake response, typhoon response,			
	itation and Illumination			etc.)	5					
	Surveillance Type and itoring Instruments an			1	Medical Emergency Respo location of first aid kit, etc.)	nse Procedures (e.g.	, exposure control precautions,			
✓ Action	on Levels			1	Hazardous Materials Spill F	Procedures				
✓ Acci	Accident Reporting Procedures			1	Applicable SOPs (e.g., Hea	-	ogram, Safe Driving, etc.)			
-	Control (visitor access munications)	s, buddy system, work zones,	security,	1	Injury/Illness Reporting Pro Route to Hospital and Medi		sit Guidelines			
		ear misses" including work creavoid similar occurrences	ew suggestions to	J	Hazard Analysis of Work T hazards and effects)	asks (chemical, phys	ical, biological and energy health			
✓ Engi	ineering Controls			J	Review AHAs with all partie	es engaged in the act	ivity (EM-385 1-1, para 01.A.13.b)			
Safety sug	gestions by site worker	s: 			Lifting ted	chniques				
Action take	en on previous suggesti	ons:			Lift with your legs and do n	ot lift over your capab	ility.			
njuries/aco meeting:	cidents/personnel chan	ges since previous			No	ne				
	ns of unsafe work practing	tices/conditions that have			Noi	ne				
	f (or changes in the loca e refuge areas:	ations of) evacuation	Craycroft Gate							
	ty Topics Discussed:	-			N/	A				
Additional	comments:	-			Noi	ne				
	Attendee signati	ures below indicate acknowled	gment of the information	n and wi	illingness to abide by the proce	edures discussed durir	ng this safety meeting.			
Attend	lee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature			
K	yle Keegan	AmecFW	78/c-							
To	ny Valentine	YJD	TAS							
Co	ody Gabala	YJD	6622							
	loyd Pena	YJD	-12.1							
			- 0 - M	_						
No	oel Garland	AmecFW	PLAN AMED							
	Meeting Conductor	ed By (print):	(Compar	ny and Title		Signature			
	Kyle Keegan				/ - Geologist	118	15-			
QA/QC'd	by: Thomas W. He	ensel Thomas	2. Hensel			QA/QC Date:	2/23/2018			



					Wilecter			
Project Name:	Site Inspection of AFFF Release A Environmental Programs Worldw		ject Number:		775303101.0009.0300			
Contract:	FA8903-16-D-0027	Tas	sk Order:		0004			
Installation:	DAVIS - Davis-Monthan AFB	Dat	e and Time:		10/27/17 07:00			
Field Manager Name:	Kyle Keegan	Site	e Health and Safety Officer	(HSO):	Gwen Minnier			
Safety Meeting Type:		Regi	ular/Daily Tailgate Safety Meetin	ng				
		Order of B	Business					
Topics Discussed (check	k all that apply):	_						
✓ Site History/Site Layout		✓						
Scope of Work		√	_	-				
 Personnel Responsibilitie 	es	1	-					
Medical Surveillance Rec	uirements	1	Decontamination Procedures	s for Personnel and Ed	' '			
Training Requirements		J	• •	ures (e.g., locations of	air horns and what 1 or 2 blasts			
Safe Work Practices			indicate)					
Logs, Reports, Recordke	eping	J		ocedures (e.g. earthqu	uake response, typhoon response,			
Sanitation and Illuminatio		_	etc.)					
✓ Air Surveillance Type and	d Frequency	✓	Medical Emergency Respon	se Procedures (e.g., e	xposure control precautions,			
Monitoring Instruments a	nd Personal Monitoring	_	location of first aid kit, etc.)					
 Action Levels 		1	·					
 Accident Reporting Proce 	edures	1	Applicable SOPs (e.g., Hear		ram, Safe Driving, etc.)			
Site Control (visitor accest	ss, buddy system, work zones, security,	√ ✓	Injury/Illness Reporting Proc Route to Hospital and Medic		Cuidolinos			
Discussion of provious "n	near misses" including work crew sugges	etions to	•		II, biological and energy health			
	avoid similar occurrences	J	hazards and effects)	(, p.,,	.,gg,			
		J	Review AHAs with all parties	s engaged in the activit	y (EM-385 1-1, para 01.A.13.b)			
Safety suggestions by site worke	ers:		Heavy li	fting				
Action taken on previous sugges	tions:	Lift with	h your legs and use forklift where	e possible to move hear	vy materials			
njuries/accidents/personnel cha meeting:	nges since previous		None	е				
Observations of unsafe work pra developed since previous meetir			None	е				
Location of (or changes in the location of each	cations of) evacuation	Craycroft Gate						
Other Safety Topics Discussed:			NA					
Additional comments:			None					
Attendee signa	tures below indicate acknowledgment of the	he information and w	illingness to abide by the proced	dures discussed during	this safety meeting.			
Attendee Name (print)		1	Attendee Name (print)	Company				
Attendee Name (print)		Signature	Attendee Name (print)	Company	Signature			
Kyle Keegan	AmecFW	Ma-						
Lloyd Pena	YJD A	1 1 1 1 1 1 1						
Cody Gabala	YJD Ø	16.12 ×						
Tony Valentine	YJD 7/2	Contract of the Contract of th						
Noel Garland	AmecFW ~ 1, 1	201						
Meeting Conduc	ted By (print):	Compa	ny and Title		Signature			
Kyle Ke	egan	AmecFV	V - Geologist	711	5:-			
QA/QC'd by: Thomas W. H	ensel Thomas & He	neel		QA/QC Date:	2/23/2018			
	- Allenda							



Proj	ect Name:	Site Inspection of AFFR Environmental Progra		Pro	ject Number:		775303101.0009.0	0300
Con	tract:	FA8903-16-E	0-0027	Tas	k Order:		0004	
Inst	allation:	DAVIS - Davis-Mo	onthan AFB	Dat	e and Time:		10/28/17 07:15	5
	d Manager Name:	Kyle Keeg	gan		Health and Safety Officer		Gwen Minnier	ſ
Safe	ety Meeting Type:		Onder		ular/Daily Tailgate Safety Meetir	ng		
	Tonios Discussed (shor	ok all that apply).	Order	OT B	usiness			
V	Topics Discussed (chec Site History/Site Layout	ck all that apply):		✓	PPE Required/PPE Used			
V	Scope of Work			V	Define PPE Levels, Donning	a. Doffina Procedur	res	
V	Personnel Responsibiliti	ies		V	Physical Hazards and Contr	-		
√	Medical Surveillance Re	equirements		~	Decontamination Procedure	s for Personnel an	id Equipment	
\checkmark	Training Requirements			✓	General Emergency Proced	ures (e.g., location	is of air horns and what	1 or 2 blasts
\checkmark	Safe Work Practices				indicate)			
√	Logs, Reports, Records	· ·		V	Site/Regional Emergency P	rocedures (e.g. ear	rthquake response, typh	noon response,
√	Sanitation and Illumination				etc.)			
✓	Air Surveillance Type ar			~	Medical Emergency Respor location of first aid kit, etc.)	ise Procedures (e.g	g., exposure control pre	ecautions,
✓ ✓	Monitoring Instruments a Action Levels	and Personal Monitoring		V	Hazardous Materials Spill P	rocedures		
✓	Accident Reporting Proc	cedures		V	Applicable SOPs (e.g., Hear		Program, Safe Driving.	etc.)
		ess, buddy system, work zones	s, security,	~	Injury/Illness Reporting Proc	-	3, , , , , , , , , , , , , , , , , , ,	,
✓	communications)		-	~	Route to Hospital and Medic	cal Care Provider V	/isit Guidelines	
✓		'near misses" including work cr o avoid similar occurrences	rew suggestions to	✓	Hazard Analysis of Work Ta hazards and effects)	sks (chemical, phy	rsical, biological and en	ergy health
✓	Engineering Controls			1	Review AHAs with all partie	s engaged in the ad	ctivity (EM-385 1-1, par	ra 01.A.13.b)
Safe	ty suggestions by site work	ers:			Dust from grout	and cement		
Actic	n taken on previous sugge	estions:	Wear a dus	st masl	k while mixing grout and try you	r best to let the wind	d blow dust from your fac	e.
Injuri meet	es/accidents/personnel cha ing:	anges since previous			Non	е		
	ervations of unsafe work proloped since previous meeti	actices/conditions that have ing:			Non	e		
	tion of (or changes in the loss/safe refuge areas:	ocations of) evacuation			Craycroft	Gate		
Othe	r Safety Topics Discussed:	: _			NA			
Addi	tional comments:				Non	е		
	Attendee sign	natures below indicate acknowle	dgment of the information	and w	illingness to abide by the proced	dures discussed duri	ing this safety meeting.	
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Sign	nature
	Kyle Keegan	AmecFW	Pola					
	Noel Garland	AmecFW	rid del					
	Lloyd Pena	YJD	The same of the					
	Cody Gabala	YJD	422					
	Tony Valentine	YJD	763					
_								
				1				
	Meeting Condu	cted By (print):	Co	ompar	ny and Title		Signature	
	Kyle K		An	necFW	/ - Geologist	77	16	
QA/	QC'd by: Thomas W. I	Hensel Thanks	25 Hensel			QA/QC Date	e: 2/23/20	018



							77.100101	_
Pro	ject Name:	Site Inspection of AFFI Environmental Progra		Pro	ject Number:		775303101.0009.0300	
Cor	ntract:	FA8903-16-E	0-0027	Tas	k Order:	-	0004	_
Inst	tallation:	DAVIS - Davis-Mo	onthan AFB	Date	e and Time:		10/29/17 06:50	
Fiel	d Manager Name:	Kyle Kee	gan	Site	Health and Safety Officer	(HSO):	Gwen Minnier	
Saf	ety Meeting Type:			Regu	ular/Daily Tailgate Safety Meetin	ig		
			Orde	er of B	usiness			
	Topics Discussed (check	all that apply):						
1	Site History/Site Layout			1	PPE Required/PPE Used			
1	Scope of Work			1	Define PPE Levels, Donning	, Doffing Procedure	s	
1	Personnel Responsibilities			1	Physical Hazards and Contro	ols (e.g., overhead ι	utility lines)	
1	Medical Surveillance Requ	iirements		1	Decontamination Procedure	s for Personnel and	Equipment	
1	Training Requirements			1		ures (e.g., locations	of air horns and what 1 or 2 blasts	
1	Safe Work Practices			_	indicate)			
1	Logs, Reports, Recordkee	ping		1	Site/Regional Emergency Pr	ocedures (e.g. earth	nquake response, typhoon response,	,
1	Sanitation and Illumination				etc.)			
1	Air Surveillance Type and I	Frequency		1		se Procedures (e.g.	, exposure control precautions,	
1	Monitoring Instruments and	d Personal Monitoring		100	location of first aid kit, etc.)			
1	Action Levels			1	Hazardous Materials Spill Pr	ocedures		
1	Accident Reporting Proced	dures		1	Applicable SOPs (e.g., Hear	ing Conservation Pr	ogram, Safe Driving, etc.)	
J	Site Control (visitor access communications)	s, buddy system, work zones	s, security,	J	Injury/Illness Reporting Proc Route to Hospital and Medic		sit Guidelines	
J	Discussion of previous "ne correct work practices to a	ear misses" including work co	rew suggestions to	J	Hazard Analysis of Work Ta hazards and effects)	sks (chemical, phys	ical, biological and energy health	
J	Engineering Controls			J	,	engaged in the act	ivity (EM-385 1-1, para 01.A.13.b)	
Safe	ety suggestions by site workers	s:			Fork lift d	riving		
Actio	on taken on previous suggestion	ons:	Use spotters, always	check	your surroundings before movin	g. Drive slowly and w	vatch for pedestrians between sites.	
	ries/accidents/personnel chanç ting:	ges since previous			None	e		
	ervations of unsafe work pract eloped since previous meeting				None	9		
	ation of (or changes in the loca	ations of) evacuation			Craycroft	Gate		
	es/safe refuge areas: er Safety Topics Discussed:	-			NA			
hhA	itional comments:	-			None	9		_
iaa		uros holow indicato acknowlo	dament of the information	and wi	illingness to abide by the proced		ag this safaty mooting	_
				i and wi				_
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature	_
	Kyle Keegan	AmecFW	78/2					
	Lloyd Pena	YJD	July -					
	Tony Valentine	YJD	-17/2					
	Cody Gabala	YJD	Charles					
								_
				\dashv				
				\dashv				_
				_				
	Meeting Conducte	ad By (print):		Comme	ny and Title		Signature	_
	Meeting Conducte	y (pinit).		Joinpal	ij alia Title	and the same of	-	_
	Kyle Kee	gan	А	mecFW	/ - Geologist	11	15	
QA	/QC'd by: Thomas W. He	nsel	2. Spensel	7		QA/QC Date:	2/23/2018	_
	-	conomics						



Proj	ect Name:	Site Inspection of AFF Environmental Progr		Proj	ect Number:		77	75303101.0009.0300
Con	tract:	FA8903-16-	D-0027	Tas	k Order:	_		0004
Inst	allation:	DAVIS - Davis-M	lonthan AFB	Date and Time:				12/18/2017 10:00
Field	d Manager Name:	Kyle Kee	egan	Site	Health and Safety Office	er (HSO):		Gwen Minnier
Safe	ety Meeting Type:			Regu	ılar/Daily Tailgate Safety Mee	ting		
			Orde	r of B	usiness			
	Topics Discussed (chec	k all that apply):						
1	Site History/Site Layout			1	PPE Required/PPE Used			
1	Scope of Work			1	Define PPE Levels, Donnir	ng, Doffing Prod	edures	
1	Personnel Responsibilitie	es		1	Physical Hazards and Con	trols (e.g., over	head utility lin	nes)
1	Medical Surveillance Red	quirements		1	Decontamination Procedur	es for Personne	and Equipn	ment
1	Training Requirements			1		dures (e.g., loc	ations of air h	horns and what 1 or 2 blasts
1	Safe Work Practices				indicate)			
1	Logs, Reports, Recordke	eeping		1	Site/Regional Emergency I	Procedures (e.g	j. earthquake	e response, typhoon response,
1	Sanitation and Illumination	on		-	etc.)			
1	Air Surveillance Type and	d Frequency		1	Medical Emergency Response	onse Procedure	s (e.g., expos	sure control precautions,
1	Monitoring Instruments a	and Personal Monitoring			location of first aid kit, etc.)		
1	Action Levels			1	Hazardous Materials Spill	Procedures		
1	Accident Reporting Proce	edures		1	Applicable SOPs (e.g., He	aring Conserva	tion Program	, Safe Driving, etc.)
1	Site Control (visitor acce	ss, buddy system, work zone	s, security,	1	Injury/Illness Reporting Pro	ocedures		
	communications)			1	Route to Hospital and Med	lical Care Provid	der Visit Guid	delines
1		near misses" including work o avoid similar occurrences	crew suggestions to	1	Hazard Analysis of Work T hazards and effects)	asks (chemical	, physical, bid	ological and energy health
1	Engineering Controls			1	Review AHAs with all parti-	es engaged in t	he activity (E	M-385 1-1, para 01.A.13.b)
Safe	ty suggestions by site worke	ers:			Moving equipme	ent across base		
Actio	n taken on previous sugges	stions:	L	Jse pro	per lifting techniques and wea	ar hard hats arou	ınd heavy eqı	uipment.
Injuri meet	es/accidents/personnel cha ing:	inges since previous			No	ine		
	ervations of unsafe work pra loped since previous meeting	actices/conditions that have			No	ne		
	tion of (or changes in the lo	cations of) evacuation			Craycro	oft Gate		
Othe	r Safety Topics Discussed:				N	Α		
Addit	tional comments:				No	ne		
	Attendee signa	atures below indicate acknowle	edgment of the information	and wil	llingness to abide by the proc	edures discusse	d during this	safety meeting.
_	Attendee Name (print)	Company	Signature	I	Attendee Name (print)	Compa		Signature
	Attendee Name (print)	Company	- C	-+	Attendee Name (print)	Compe	y	oignature
	Kyle Keegan	AmecFW	78/c					
	Samantha Sargent	AmecFW	A-JA-K					
	Audrey Yorke	Amec FW	44					
	Meeting Conduc	cted By (print):	c	ompan	y and Title			Signature
	Kyle Ke	- "			- Geologist	-	1115	
QA/	QC'd by: Thomas W. H	Hensel The	mas 25. Hensel	0		QA/QC	Date:	1/3/2018



Project Name:	Site Inspection of AF Environmental Pro		Pro	ject Number:		775303101.0009.0300
Contract:	FA8903-10	6-D-0027	Tas	k Order:		0004
Installation: DAVIS - Davis				e and Time:		12/19/17 08:30
Field Manager Name:	Kyle Ke	eegan	Site	Health and Safety Officer	(HSO):	Gwen Minnier
Safety Meeting Type:				ılar/Daily Tailgate Safety Meetir	ng	
		Order	of B	usiness		
Topics Discussed (check	all that apply):		EST	DDE D : 1/DDE 11 1		
Site History/Site Layout			1	PPE Required/PPE Used Define PPE Levels, Donning	Doffing Procedure	20
Scope of Work			1	Physical Hazards and Contr		
✓ Personnel Responsibilities✓ Medical Surveillance Requ			1	Decontamination Procedure		• •
✓ Training Requirements	all efficities					s of air horns and what 1 or 2 blasts
✓ Safe Work Practices			1	indicate)	ures (e.g., locations	of all Horns and what I of 2 blasts
✓ Logs, Reports, Recordkee	enina			,	rocedures (e.g. earl	thquake response, typhoon response,
✓ Sanitation and Illumination	· -		1	etc.)	occurred (c.g. carr	inquake response, typhoon response,
✓ Air Surveillance Type and			No.	Medical Emergency Respon	ise Procedures (e.g	., exposure control precautions,
✓ Monitoring Instruments an			1	location of first aid kit, etc.)	(0.9	i, exposure control procedure.ic,
✓ Action Levels	ŭ		1	Hazardous Materials Spill Pi	rocedures	
Accident Reporting Proce	dures		1	Applicable SOPs (e.g., Hear	ring Conservation P	rogram, Safe Driving, etc.)
Site Control (visitor acces communications)	s, buddy system, work zor	nes, security,	1	Injury/Illness Reporting Proc Route to Hospital and Medic		sit Guidelines
Discussion of previous "ne correct work practices to a	•	crew suggestions to	J	·		sical, biological and energy health
✓ Engineering Controls	avoid diffinal doddffdfiddd		1	,	s engaged in the ac	tivity (EM-385 1-1, para 01.A.13.b)
Safety suggestions by site worker	's:			Moving in	n CMA	
Action taken on previous suggesti	ions:	Wait for	permis	ssion from the tower before mov	ing in work area. Sta	ay within the work area.
Injuries/accidents/personnel chan meeting:	ges since previous			Non	e	
Observations of unsafe work praced developed since previous meeting				Non	е	
Location of (or changes in the loc routes/safe refuge areas:	ations of) evacuation			Craycroft	t Gate	
Other Safety Topics Discussed:				NA		
Additional comments:				Non	<u> </u>	
Attendes signat	ures helow indicate acknow	yledament of the information	and wi	Ilingness to abide by the proced	turae discussad duri	ng this safety meeting
Attendee Name (print)	Company	Signature	ana w	Attendee Name (print)	Company	Signature
Attendee Name (print)	Сопрапу			Attendee Name (print)	Company	Signature
Kyle Keegan	AmecFW	78/2-				
Lloyd Pena	YJD	16/2/1-				
Cody Gabala	YJD	Chille				
Tony Valentine	YJD	Colored Services				
Samantha Sargent	AmecFW	SHARK SHARK				
Dennis Heyer	AGEISS	Albani 18 Demini				
			1			
Meeting Conduct	ed By (print):	Co	ompar	ny and Title		Signature
Kyle Kee	egan	An	necFW	/ - Geologist	78.	185-
QA/QC'd by: Thomas W. He	ensel Then	nas S. Hensel	1		QA/QC Date	: 1/3/2018



Site Health and Safety Officer (HSO): Kyle Keegan Regular/Daily Tailgate Safety Meeting Type: Regular/Daily Tailgate Safety Meeting Type: Regular/Daily Tailgate Safety Meeting Topics Discussed (check all that apply): Site History/Site Layout Define PPE Levels, Donning, Doffing Procedures Define Procedures Define PPE Levels, Donning, Doffing Procedures Define Procedures Define PPE Levels, Donning, Doffing Procedures Define Procedures Define Procedures Define Procedures Decortain and Control (set of Provided Regional Emergency Procedures (e.g., exposure control procedurons, location of first aid kit, etc.) Decusion Instruments and Personal Monitoring Decusion of previous Materials Spill Procedures Decusion of previous Procedure		•	ns Worldwide				
Intelled Manager Name: Kriyle Keegan	Contract:	FA8903-16-D-	0027	Tae	k Order:		0004
Safety Meeting Type: Corder of Business Tooles Discussed (check all that apply): Company and Title Installation:			-				
Topics Discussed (check all that apply): Selection Field Manager Name: Kyle Keeg		an	Site	Health and Safety Officer	(HSO):	Kyle Keegan	
Topics Discussed (clarked all that apply): Selection (Steel Linguist)	Safety Meeting Type:			Regu	ular/Daily Tailgate Safety Meeti	ng	
Step of Work Per Required Per Evels, Doming, Doffing Procedures			Orde	r of B	usiness		
Elementary Responsibilities Personnel Responsibilities Lementary Personnel Responsibilities Lementary Responsibilities Lemen	Topics Discussed (check all that	at apply):					
Personal Responsibilities Physical Hazards and Controls (e.g., overhead willly lives) Decorations for Personnel and Equipment Decorations for First above the color of F	✓ Site History/Site Layout			1			
Decontamination Procedures for Personnel and Equipment Staff Work Practices Staff Work Practices Logs, Reports, Recordingeling Staff S	Scope of Work			1	Define PPE Levels, Donning	g, Doffing Procedure	es
Ceneral Emergency Procedures (e.g., locations of air homs and what 1 or 2 blasts indicates (e.g. and the procedures (e.g., and punk of air homs and what 1 or 2 blasts indicates (e.g. and the punk of air homs and what 1 or 2 blasts indicates (e.g. and the punk of air homs and what 1 or 2 blasts indicates (e.g. and the punk of air homs and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts indicates (e.g. and the punk of air home and what 1 or 2 blasts (e.g. and the punk of air home and what 1 or 2 blasts (e.g. and the punk of air home and what 1 or 2 blasts (e.g. and the punk of air and the p	 Personnel Responsibilities 			1	Physical Hazards and Contr	rols (e.g., overhead	utility lines)
Indicate	Medical Surveillance Requirement	ents		1	Decontamination Procedure	s for Personnel and	I Equipment
Logs, Reports, Recordkeeping Seniation and Illumination And Surveillance Type and Frequency Monitoring instruments and Personal Monitoring Action Levels Action Level Action L				J		lures (e.g., locations	s of air horns and what 1 or 2 blasts
Santation and Illumination Etc. Santation and Illumination Etc. Santation and Illumination Santation and Illumination Santation Santat				191	,	rocedures (e.g. eart	thquake response, typhoon response,
Controlling Instruments and Personal Monitoring Control Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, communications) Control (visitor access, buddy system, work zones, security, control (visitor access, purp	Sanitation and Illumination				etc.)		
Montoining Instruments and Personal Monitoring December Dece	Air Surveillance Type and Frequence	iency		J		nse Procedures (e.g	., exposure control precautions,
Light Reporting Procedures Site Control (visitor access, buddy system, work zones, security, communications) Discussion of previous "near misses" including work crew suggestions to correct work practices to avoid similar occurrences Provide the Analysis of Work Tasks (chemical, physical, biological and energy health hazards and effects) Review AHAs with all parties engaged in the activity (EM-385 1-1, para 01 A.13.b) Safety suggestions by site workers: Review AHAs with all parties engaged in the activity (EM-385 1-1, para 01 A.13.b) Safety suggestions by site workers: Stay hydrated Water for crew kept on site None Deservations of unsafe work practices/conditions that have believelinged since previous meeting: Deservations of unsafe work practices/conditions that have believelinged since previous meeting: Deservations of unsafe work practices/conditions that have believelinged since previous meeting: Deservations of unsafe work practices/conditions that have believelinged since previous meeting: Deservations of unsafe work practices/conditions that have believelinged since previous meeting: Deservations of unsafe work practices/conditions that have believelinged since previous meeting: None Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print) Company Signature Attendee Name (print) Company Signature Audrey Yorke AmedFW Tony Valentine YJD William Company Signature Attendee Name (print) Company Signature Weeting Conducted By (print): Cody Gabalia YJD Weeting Conducted By (print): Company and Title Signature	✓ Monitoring Instruments and Person	sonal Monitoring		-	location of first aid kit, etc.)		
□ Silicontrol (visitor access, buddy system, work zones, secunty, communications) □ Discussion of previous "near misses" including work crew suggestions to communications of previous "near misses" including work crew suggestions to communications of previous "near misses" including work crew suggestions to communications of previous suggestions to control work practices to avoid similar occurrences □ Engineering Controls □ Review AHAs with all parties engaged in the activity (EM-385 1-1, para 01 A.13.b) Safety suggestions by site workers: **Review AHAs with all parties engaged in the activity (EM-385 1-1, para 01 A.13.b) **Safety suggestions by site workers: **Review AHAs with all parties engaged in the activity (EM-385 1-1, para 01 A.13.b) **Safety suggestions by site workers: **Stay hydrated** **None** **None** **None** **None** **Descriptions of unsafe work practices/conditions that have believeloped since previous meeting: **Ocception of (or changes in the locations of) evacuation outles/safe refuge areas: **Dither Safety Topics Discussed: **None** **Attendees Name (print)	Action Levels			1	Hazardous Materials Spill P	rocedures	
Route to Hospital and Medical Care Provider Visit Guidelines Route to Hospital and Medical Care Provider Visit Guidelines Route to Hospital and Medical Care Provider Visit Guidelines Razard Analysis of Work Tasks (chemical, physical, biological and energy health cornect work practices to avoid similar occurrences Razard Analysis of Work Tasks (chemical, physical, biological and energy health cornect work practices to avoid similar occurrences Review AHAs with all parties engaged in the activity (EM-385 1-1, para 01 A.13.b)	Accident Reporting Procedures			1	Applicable SOPs (e.g., Hea	ring Conservation P	Program, Safe Driving, etc.)
Discussion of previous "near misses" including work crew suggestions to provide work practices to avoid similar occurrences Engineering Controls Review AHAs with all parties engaged in the activity (EM-385 1-1, para 01 A.13.b) Safety suggestions by site workers: Starby suggestions by site workers: Starby principal controls Water for crew kept on site None None Discussion of (or changes in the locations of) evacuation outles dark enfuge areas. Diber Safety Topics Discussed: Additional comments: Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print) Company Signature Meeting Conducted By (print): Company and Title Signature Meeting Conducted By (print): Company and Title Signature	2	dy system, work zones,	security,				isit Guidelines
Engineering Controls	Discussion of previous "near mis		ew suggestions to		Hazard Analysis of Work Ta		
Safety suggestions by site workers: Action taken on previous suggestions: Water for crew kept on site None None None None None None None Search previous meeting: Descriptions of unsafe work practices/conditions that have developed since previous meeting: Descriptions of unsafe work practices/conditions that have developed since previous meeting: Descriptions of or changes in the locations of) evacuation outles/safe refuge areas: None Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print) Company Signature Attendee Name (print) Company Signature Audrey Yorke AmecFW Tony Valentine YJD Jacks AmecFW Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature	_	similar occurrences		J	,	s engaged in the ac	tivity (EM-385 1-1, para 01.A.13.b)
injuries/accidents/personnel changes since previous meeting: Diservations of unsafe work practices/conditions that have developed since previous meeting:	Safety suggestions by site workers:				Stay hyd	drated	
Diseaseding of unsafe work practices/conditions that have developed since previous meeting: None None None None None None None None None Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print) Company Signature Attendee Name (print) Company Signature Audrey Yorke AmecFW Tony Valentine YJD Lloyd Pena YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature Meeting Conducted By (print): Company and Title Signature	Action taken on previous suggestions:	_			Water for crew	kept on site	
Disservations of unsafe work practices/conditions that have developed since previous meeting: Docation of (or changes in the locations of) evacuation outes/safe refuge areas: Dother Safety Topics Discussed: None Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print) Company Signature Audrey Yorke AmecFW Tony Valentine YJD Lloyd Pena YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature Signature		nce previous			Non	ie	
Jeveloped since previous meeting: Location of (or changes in the locations of) evacuation outes/safe refuge areas: Other Safety Topics Discussed: NA Additional comments: None Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print)	neeting.	_					
Other Safety Topics Discussed: Additional comments: None Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print) Company Signature Attendee Name (print) Company Signature Audrey Yorke AmecFW Tony Valentine YJD Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature Signature Signature None Attendee Name (print) Company Signature Signature Meeting Conducted By (print): Company and Title Signature	Observations of unsafe work practices/o developed since previous meeting:	conditions that have			Non	ie	
Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print)	Location of (or changes in the locations routes/safe refuge areas:	of) evacuation			Wilmot	Gate	
Attendee signatures below indicate acknowledgment of the information and willingness to abide by the procedures discussed during this safety meeting. Attendee Name (print) Company Signature Audrey Yorke AmecFW Tony Valentine YJD Lloyd Pena YJD Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature Signature Signature Signature Signature	Other Safety Topics Discussed:				NA		
Attendee Name (print) Company Signature Attendee Name (print) Company Signature Audrey Yorke AmecFW Tony Valentine YJD Lloyd Pena YJD Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature	Additional comments:	_			Non	ie	
Audrey Yorke AmecFW Tony Valentine YJD Lloyd Pena YJD Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature	Attendee signatures b	elow indicate acknowled	gment of the information	and wi	illingness to abide by the proce	dures discussed duri	ing this safety meeting.
Tony Valentine YJD Lloyd Pena YJD Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature
Lloyd Pena YJD Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature	Audrey Yorke	AmecFW	1950				
Lloyd Pena YJD Cody Gabala YJD Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature	Tony Valentine	YJD	7000				
Kyle Keegan AmecFW Meeting Conducted By (print): Company and Title Signature	Lloyd Pena	YJD	Myst 12=-				
Meeting Conducted By (print): Company and Title Signature	Cody Gabala	YJD	CAR				
$f_{2}(\cdot)$	Kyle Keegan	AmecFW	1816				
$f_{2}(\cdot)$							
$f_{2}(\cdot)$				_			
$f_{2}(\cdot)$	Magting Conducted Pu	(print):		`omnan	av and Title		Signature
	meeting conducted by	(pit).		Jinpai	., 1110	1	Organization -



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Project N	ame:	Site Inspection of AFFI Environmental Progra		Pro	ject Number:		775303101.0009.0300
Contract: FA8903-16-D-		0-0027	_ Tas	k Order:		0004	
Installatio		DAVIS - Davis-Mo		_	e and Time:		12/21/17 07:09
Field Man	nager Name:	Kyle Kee	jan	Site	Health and Safety Officer	(HSO):	Gwen Minnier
Safety Me	eeting Type:			Regu	ular/Daily Tailgate Safety Meeting	ng	
			Orde	er of B	usiness		
	cs Discussed (check	all that apply):					
_	History/Site Layout			J	PPE Required/PPE Used		
	oe of Work			1	Define PPE Levels, Donning	=	
_	onnel Responsibilities			1	Physical Hazards and Contr		• •
	ical Surveillance Requ	irements		1	Decontamination Procedure	s for Personnel and I	Equipment
_	ning Requirements			1		ures (e.g., locations	of air horns and what 1 or 2 blasts
	Work Practices				indicate)		
-	s, Reports, Recordkee	ping		1		rocedures (e.g. earth	iquake response, typhoon response,
	tation and Illumination				etc.)		
✓ Air S	Surveillance Type and	Frequency		1		ise Procedures (e.g.,	, exposure control precautions,
	itoring Instruments and	d Personal Monitoring			location of first aid kit, etc.)		
_	on Levels			1	Hazardous Materials Spill Pi		
✓ Acci	dent Reporting Proced	dures		1	Applicable SOPs (e.g., Hear	-	ogram, Safe Driving, etc.)
4	Control (visitor access munications)	s, buddy system, work zones	s, security,	1	Injury/Illness Reporting Proc Route to Hospital and Medic		it Guidelines
		ear misses" including work co avoid similar occurrences	ew suggestions to	1	Hazard Analysis of Work Ta hazards and effects)	sks (chemical, physi	cal, biological and energy health
✓ Engi	neering Controls			J	Review AHAs with all parties	s engaged in the acti	vity (EM-385 1-1, para 01.A.13.b)
Safety sugg	gestions by site workers	S:			FOD and working i	n the flight path	
Action take	n on previous suggesti	ons:	Pick u	ıp all tras	sh immediately be prepared to n	nove off the rig if the t	ower needs us clear.
njuries/aco	idents/personnel chanç	ges since previous			Non	e	
	ns of unsafe work pract since previous meeting	tices/conditions that have			Non	e	
	(or changes in the local refuge areas:	ations of) evacuation			Craycroft	: Gate	
	ty Topics Discussed:	-			NA		
Additional o	comments:	-			Non	e	
	Attendee signatu	ures below indicate acknowle	dament of the informatio	n and w	illingness to abide by the proced	dures discussed durin	g this safety meeting.
Attend	ee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature
71110110	ce rume (print)	Company			7 ttendee (Print)	Company	Olgridiaio
Ky	yle Keegan	AmecFW	78/5				
L	loyd Pena	YJD	- J. L. J.				
Tor	ny Valentine	YJD	TAR				
Au	idrey Yorke	AmecFW	Ass				
Co	ody Gabala	YJD	LET :				
De	ennis Heyer	AGEISS	Dentifica	**			
Ri	chard Hoyt	YJD	Sound Not				
	•			\dashv			
	Meeting Conducte	ed By (print):		Compar	ny and Title		Signature
	Kyle Kee	, ,			/ - Geologist	74	
	. 9.0					. 40-	3
QA/QC'd	by: Thomas W. He	nsel The	mas 2. Afense	l		QA/QC Date:	1/3/2018



Project Name:	Site Inspection of AFFI Environmental Progra		Pro	ject Number:		775303101.0009.0300
Contract:	FA8903-16-E	0-0027	_ Tas	k Order:		0004
Installation:	DAVIS - Davis-Mo	onthan AFB	Date	e and Time:		12/22/17 07:10
Field Manager Name:	Kyle Kee	gan	Site	Health and Safety Office	r (HSO):	Gwen Minnier
Safety Meeting Type:			Regu	ılar/Daily Tailgate Safety Meet	ting	
		Orde	er of B	usiness		
Topics Discussed (cl	heck all that apply):					
Site History/Site Layo	out		1	PPE Required/PPE Used		
Scope of Work			1	Define PPE Levels, Donnin	ng, Doffing Procedu	ires
✓ Personnel Responsib	ilities		1	Physical Hazards and Conf	trols (e.g., overhea	d utility lines)
✓ Medical Surveillance			1	Decontamination Procedure		
✓ Training Requirement	•					ns of air horns and what 1 or 2 blasts
✓ Safe Work Practices			1	indicate)	duics (c.g., location	ns of all horns and what I of 2 blasts
	rdkooning			,	D	
	· -		1		Procedures (e.g. ea	arthquake response, typhoon response,
Sanitation and Illumin				etc.)		
✓ Air Surveillance Type			1			.g., exposure control precautions,
Monitoring Instrument	ts and Personal Monitoring			location of first aid kit, etc.))	
 Action Levels 			1	Hazardous Materials Spill F	Procedures	
Accident Reporting P	rocedures		1	Applicable SOPs (e.g., Hea	aring Conservation	Program, Safe Driving, etc.)
Site Control (visitor ad	ccess, buddy system, work zones	s, security,	1	Injury/Illness Reporting Pro	ocedures	
communications)		-	1	Route to Hospital and Med	ical Care Provider \	Visit Guidelines
	is "near misses" including work cost to avoid similar occurrences	rew suggestions to	1	Hazard Analysis of Work T hazards and effects)	asks (chemical, ph	ysical, biological and energy health
			J	*	es engaged in the a	activity (EM-385 1-1, para 01.A.13.b)
Safety suggestions by site we	orkers:			Cold weather distraction	ns. Water consumpt	ion
Action taken on previous sug	gestions:		Rem	Wear warm clothes but layer ember to drink water througho		
Injuries/accidents/personnel meeting:	changes since previous			No	ne	
Observations of unsafe work developed since previous me	practices/conditions that have eeting:			No	ne	
Location of (or changes in the routes/safe refuge areas:	e locations of) evacuation			Craycro	oft Gate	
Other Safety Topics Discusse	ed:			N/	A	
Additional comments:	•			No	ne	
Attendee si	ignatures below indicate acknowle	dgment of the informatio	n and wi	llingness to abide by the proce	edures discussed du	uring this safety meeting.
Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature
Kyle Keegan	AmecFW	78/c				
Audrey Yorke	AmecFW	Sex-				
Lloyd Pena	YJD	A.	9			
Cody Gabala	YJD	Company of the Compan				
Tony Valentine	YJD	7 Lan				
Mosting Con	ducted By (print):		Compar	ny and Title		Signature
-				•	-71	Signature
Kyle	e Keegan			/ - Geologist	C. 1/2	01.01
QA/QC'd by: Thomas W	V. Hensel	omas 2. Hense	l		QA/QC Dat	te: 1/3/2018



Proj	ect Name:	Site Inspection of AFF Environmental Progra		Proj	ject Number:		775303101.0009.03	00
Con	tract:	FA8903-16-I	D-0027	_ Tas	k Order:		0004	
Inst	allation:	DAVIS - Davis-M	onthan AFB	Date	e and Time:		12/23/17 07:05	
Fiel	d Manager Name:	Kyle Kee	gan	Site	Health and Safety Office	er (HSO):	Gwen Minnier	
Safe	ety Meeting Type:			Regu	ılar/Daily Tailgate Safety Mee	ting		
			Orde	er of B	usiness			
	Topics Discussed (check	all that apply):						
1	Site History/Site Layout			1	PPE Required/PPE Used			
1	Scope of Work			1	Define PPE Levels, Donnii	ng, Doffing Proced	dures	
1	Personnel Responsibilities	1		1	Physical Hazards and Con	ntrols (e.g., overhe	ad utility lines)	
1	Medical Surveillance Requ	uirements		1	Decontamination Procedur	res for Personnel a	and Equipment	
1	Training Requirements			1	General Emergency Proce	edures (e.g., locati	ons of air horns and what 1	or 2 blasts
1	Safe Work Practices			-	indicate)			
1	Logs, Reports, Recordkee	eping		J	Site/Regional Emergency	Procedures (e.g. 6	earthquake response, typho	on response,
1	Sanitation and Illumination			-	etc.)			
1	Air Surveillance Type and	Frequency		J	Medical Emergency Response	onse Procedures (e.g., exposure control preca	autions,
1	Monitoring Instruments an	d Personal Monitoring		-	location of first aid kit, etc.)		
1	Action Levels			1	Hazardous Materials Spill	Procedures		
1	Accident Reporting Proces	dures		1	Applicable SOPs (e.g., He	aring Conservatio	n Program, Safe Driving, et	c.)
1	Site Control (visitor access	s, buddy system, work zone	s, security,	1	Injury/Illness Reporting Pro	ocedures		
_	communications)			1	Route to Hospital and Med	dical Care Provide	r Visit Guidelines	
1		ear misses" including work c	rew suggestions to	1	Hazard Analysis of Work 7	Γasks (chemical, p	physical, biological and energ	gy health
1	correct work practices to a Engineering Controls	avoid similar occurrences		J	hazards and effects) Review AHAs with all parti	ies engaged in the	activity (EM-385 1-1, para	01 A 13 b)
	ty suggestions by site worker	e·			Keeping your mind			0 1 11 11 10 10)
	n taken on previous suggesti		Don't thir	nk about	leaving and getting home. Sta	ay in the moment a	nd pay attention to hazzards	
njuri neet	es/accidents/personnel chan- ing:	ges since previous			No	one		
	ervations of unsafe work prac loped since previous meeting				No	one		
	tion of (or changes in the locals)	ations of) evacuation			Craycro	oft Gate		
Othe	r Safety Topics Discussed:				N	IA		
Addi	tional comments:				No	one		
	Attendee signate	ures below indicate acknowle	dgment of the informatio	n and wi	Ilingness to abide by the proc	edures discussed of	during this safety meeting.	
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	/ Signat	ture
	Kyle Keegan	AmecFW	78/2					
	Lloyd Pena	YJD	-MAJ-					
	Tony Valentine	YJD	7-6-2-					
	Cody Gabala	YJD	Carle St.					
	Meeting Conduct	ed By (pript):		Compan	ny and Title		Signature	
	-	-			•	-7	- Communication	
	Kyle Kee	yan		-inecrv	/ - Geologist	£ 4	11 1 5 3	
QA/	QC'd by: Thomas W. He	ensel Th	mas 25. Hense	l		QA/QC Da	ate: 1/3/2018	3



Project Name:	Site Inspection of AFF Environmental Progr		Pro	ject Number:		775303101.0009.0300
Contract:	FA8903-16-	D-0027	_ Tas	k Order:		0004
Installation:	DAVIS - Davis-M		_	e and Time:		01/02/18 10:12
Field Manager Name: Kyle Kee		gan	Site	Health and Safety Officer ((HSO):	Gwen Minnier
Safety Meeting Type:			Regu	ular/Daily Tailgate Safety Meetin	g	
		Orde	er of B	usiness		
Topics Discussed (check	all that apply):					
✓ Site History/Site Layout			1	PPE Required/PPE Used		
Scope of Work			1	Define PPE Levels, Donning,	-	
 Personnel Responsibilities 			1	Physical Hazards and Contro		
Medical Surveillance Requ	irements		1	Decontamination Procedures	for Personnel and	Equipment
Training Requirements			1		ires (e.g., locations	of air horns and what 1 or 2 blasts
Safe Work Practices				indicate)		
Logs, Reports, Recordkee	ping		J		ocedures (e.g. eartl	nquake response, typhoon response,
 Sanitation and Illumination 				etc.)		
Air Surveillance Type and I	Frequency		1		se Procedures (e.g.	, exposure control precautions,
Monitoring Instruments and	d Personal Monitoring		_	location of first aid kit, etc.)		
 Action Levels 			1	Hazardous Materials Spill Pro	ocedures	
 Accident Reporting Proced 	lures		1	Applicable SOPs (e.g., Heari	ng Conservation Pr	rogram, Safe Driving, etc.)
Site Control (visitor access communications)	s, buddy system, work zone	s, security,	1	Injury/Illness Reporting Proce Route to Hospital and Medica		sit Guidelines
Discussion of previous "ne correct work practices to a	ar misses" including work o	rew suggestions to	J	Hazard Analysis of Work Tas hazards and effects)	sks (chemical, phys	ical, biological and energy health
Engineering Controls			J	Review AHAs with all parties	engaged in the act	ivity (EM-385 1-1, para 01.A.13.b)
Safety suggestions by site workers	3:			Proper lifting techniques whil	e cleaning up work	sites
Action taken on previous suggestion	ons:			None		
Injuries/accidents/personnel chang meeting:	ges since previous			None		
Observations of unsafe work pract developed since previous meeting				None	•	
Location of (or changes in the loca routes/safe refuge areas:	ations of) evacuation			Craycroft	Gate	
Other Safety Topics Discussed:				NA		
Additional comments:				None	,	
Attendee signatu	ıres below indicate acknowle	dgment of the information	n and wi	illingness to abide by the proced	ures discussed durir	ng this safety meeting.
Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature
Kyle Keegan	AmecFW	78/5				
Samantha Sargent	AmecFW	34.A				
Omar Morales	YJD	Onicated				
Tony Valentine	YJD	1 / Lunga-				
Cody Gabala	YJD	College College				
Jason Hostetler	YJD	Jugar Historia				
Curt Carlson	YJD	Cook Conta-	H			
ourt Garisori	130	A 1000 Mark \$200	\dashv			
Meeting Conducte	ed By (print):		Compar	ny and Title		Signature
-	,			•	71	- XIA
Kyle Keeg	gan	<u> </u>	∖mec⊦ν∖	/ - Geologist	1 1	()



							wheeler			
Pro	ject Name:	Site Inspection of AFF Environmental Progr		Pro	oject Number:		775303101.0009.0300			
Cor	ntract:	FA8903-16-	D-0027	- Tas	sk Order:	-	0004			
	allation:	DAVIS - Davis-M		_	te and Time:		01/03/18 07:09			
Fiel	d Manager Name:	Kyle Kee	gan	Site	e Health and Safety Officer	(HSO):	Gwen Minnier			
Saf	ety Meeting Type:			Reg	ular/Daily Tailgate Safety Meetin	g				
			Orde	er of E	Business					
	Topics Discussed (check	all that apply):		_						
1	Site History/Site Layout			1						
1	Scope of Work			J	-					
~	Personnel Responsibilities			J	•	. •	• •			
V	Medical Surveillance Requ	uirements		~						
~	Training Requirements			J		ures (e.g., locations	of air horns and what 1 or 2 blasts			
V	Safe Work Practices				indicate)					
V	Logs, Reports, Recordkee	. •		J	Site/Regional Emergency Pr etc.)	ocedures (e.g. earth	iquake response, typhoon response,			
✓	Sanitation and Illumination				,	D				
>	Air Surveillance Type and Monitoring Instruments ar			√	location of first aid kit, etc.)	se Procedures (e.g.,	, exposure control precautions,			
✓	Action Levels	id Fersorial Monitoring		J		ncedures				
~	Accident Reporting Proce	duree		V			ogram Safe Driving etc.)			
		s, buddy system, work zone	e equirity	✓		-	ogram, date briving, etc.)			
1	communications)	s, buddy system, work zone	is, security,	V	, ,		it Guidelines			
_	Discussion of previous "no	ear misses" including work	rrew suggestions to		Hazard Analysis of Work Ta		cal, biological and energy health			
1	correct work practices to		new auggestions to	~	hazards and effects)	ska (crierriicai, priyar	cai, biological and energy health			
~	Engineering Controls			~	,	engaged in the acti	ivity (EM-385 1-1, para 01.A.13.b)			
	ety suggestions by site worke	rs:	Be aware		oundings and overhead items. W	0 0	,			
Actio	on taken on previous suggest	tions:			None)				
	ies/accidents/personnel char		None							
mee	ting:				None	•				
	ervations of unsafe work prace eloped since previous meeting				None	•				
	ation of (or changes in the loc	eations of) evacuation			Craycroft	Gate				
route	es/safe refuge areas:	•								
Othe	er Safety Topics Discussed:		NA							
۸۵۵	tional comments:	•			None					
Add	tional comments:				NOTE					
	Attendee signatu	ures below indicate acknowle	dgment of the information	n and w	villingness to abide by the proced	lures discussed durin	g this safety meeting.			
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature			
	Kyle Keegan	AmecFW	FRET							
	Samantha Sargent	AmecFW								
	Curt Carlson	YJD	48 (2.lk) -							
	Omar Vega Morales	YJD	(24-47							
	Audrey Yorke	AmecFW	1430							
	Bryan Hansen	AmecFW	By 8.4.							
	John Peacock	YJD								
Cody Gabala YJD			112							
Jason Hostetler YJD			King Medica							
	Tony Valentine	YJD	-1 There-							
	Richard Hoyt	YJD	and Wo	•						
	Meeting Conduct	ed By (print):	(Compa	ny and Title		Signature			
	Kyle Kee	- " '			V - Geologist	The	£			
04	QC'd by: Thomas W. He	ansel and	ias & Henrel	0		QA/QC Date:	1/5/2018			
WΗ	woung. Incinas W. H	ethon ethon	cas a symmet			wave Date:	1/3/2010			



Project Name:	Site Inspection of AFFF Environmental Progra		Pro	ject Number:		775303101.0009.0300		
Contract:	FA8903-16-E	0-0027	- Tas	k Order:	-	0004		
Installation:	DAVIS - Davis-Mo		_	e and Time:		01/04/18 07:15		
Field Manager Name:	Kyle Keeg	gan	Site	Health and Safety Officer	(HSO):	Kyle Keegan		
Safety Meeting Type:			Regu	ular/Daily Tailgate Safety Meetii	ng			
		Orde	er of B	usiness				
Topics Discussed (check a	all that apply):							
✓ Site History/Site Layout			1	PPE Required/PPE Used				
Scope of Work			1	Define PPE Levels, Donning, Doffing Procedures				
Personnel Responsibilities			1	Physical Hazards and Contr	ols (e.g., overhead	d utility lines)		
Medical Surveillance Requi	irements		1	Decontamination Procedure	s for Personnel an	nd Equipment		
Training Requirements			1		ures (e.g., locatior	ns of air horns and what 1 or 2 blasts		
Safe Work Practices				indicate)				
Logs, Reports, Recordkee	ping		J		rocedures (e.g. ea	arthquake response, typhoon response,		
Sanitation and Illumination				etc.)				
Air Surveillance Type and F	requency		1		se Procedures (e.	.g., exposure control precautions,		
Monitoring Instruments and	Personal Monitoring		_	location of first aid kit, etc.)				
Action Levels			1	Hazardous Materials Spill P	rocedures			
Accident Reporting Proced	ures		1	Applicable SOPs (e.g., Hea	ring Conservation	Program, Safe Driving, etc.)		
Site Control (visitor access communications)	, buddy system, work zones	s, security,	J	Injury/Illness Reporting Proc Route to Hospital and Medic		Visit Guidelines		
Discussion of previous "nea	ar misses" including work cr	rew suggestions to	1			ysical, biological and energy health		
correct work practices to a Engineering Controls	void similar occurrences		J	,	s engaged in the a	activity (EM-385 1-1, para 01.A.13.b)		
Safety suggestions by site workers	: :			Stay hyd				
Action taken on previous suggestic	-	Water procured for team						
Injuries/accidents/personnel chang	-			•				
meeting:	· -			Non	e 			
Observations of unsafe work practi developed since previous meeting:		None						
Location of (or changes in the loca routes/safe refuge areas:	tions of) evacuation	Craycroft Gate						
Other Safety Topics Discussed:		NA						
Additional comments:	-	None						
Attendee signatu	res below indicate acknowled	dgment of the information	n and wi	illingness to abide by the proced	dures discussed du	uring this safety meeting.		
Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature		
Kyle Keegan	AmecFW	78/c						
Audrey Yorke	AmecFW	Milm						
Bryan Hansen	AmecFW	By 101/4						
Omar Morales	YJD	(Note Sold						
Curt Carlson	YJD	at Tout-						
	YJD	The						
Tony Valentine								
Cody Gabala	YJD	Care -						
Jason Hostetler	YJD	Jens High						
Meeting Conducte	ed By (print):		Compar	ny and Title		Signature		
Kyle Keeç	gan	F	AmecFW	/ - Geologist	77	1/5-		
QA/QC'd by: Thomas W. He		Thomas S. Her		0	QA/QC Dat			



							wheeler	
Pro	ject Name:	Site Inspection of AFF Environmental Prog		Proj	ject Number:		775303101.0009.0300	
Con		FA8903-16-	-D-0027	_ Tas	k Order:		0004	
Inst	allation:	DAVIS - Davis-N	Monthan AFB	Date	e and Time:		01/05/18 07:20	
Fiel	d Manager Name:	Kyle Kee	egan	Site	Health and Safety Officer	(HSO):	Kyle Keegan	
Safe	ety Meeting Type:				ılar/Daily Tailgate Safety Meeti	ng		
			Orde	er of B	usiness			
\ \ \ \ \ \ \	Topics Discussed (check Site History/Site Layout Scope of Work Personnel Responsibilities Medical Surveillance Req Training Requirements Safe Work Practices Logs, Reports, Recordket Sanitation and Illumination	s uirements eping		\ \ \ \				
1	Air Surveillance Type and			Inst	,	nse Procedures (e.g., e	exposure control precautions,	
1	communications)	,		y y y y	location of first aid kit, etc.) Hazardous Materials Spill P Applicable SOPs (e.g., Hea Injury/Illness Reporting Prod Route to Hospital and Medic	rocedures ring Conservation Prog cedures cal Care Provider Visit	gram, Safe Driving, etc.)	
1	correct work practices to		siew ouggeotions to	1	hazards and effects)	aono (onormodi, priyotot	ar, biological and chorgy health	
1	Engineering Controls			1	Review AHAs with all partie	s engaged in the activi	ty (EM-385 1-1, para 01.A.13.b)	
Safe	ty suggestions by site worker	rs:			Wash hands to			
	on taken on previous suggest ies/accidents/personnel chan				Wash hands	•		
mee					Non	ie .		
	ervations of unsafe work praceloped since previous meeting				Non	e		
	ation of (or changes in the loc es/safe refuge areas:	ations of) evacuation			Craycrof	t Gate		
Othe	er Safety Topics Discussed:				NA			
Addi	tional comments:				Non	e		
	Attendee signat	ures below indicate acknowle	edgment of the information	n and wi	llingness to abide by the proce	dures discussed during	this safety meeting.	
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature	
	Kyle Keegan	AmecFW	78/c					
	Audrey Yorke	AmecFW	Mayor					
	Omar V Morales	YJD	() "干沙"					
	Curt Carlson	YJD	L. N. Enich					
	Bryan Hansen	AmecFW	Ey P.H.					
	Meeting Conduct	ed By (print):	(Compan	ny and Title	=	Signature	
	Kyle Kee	,			- Geologist	130	•	
QA/	QC'd by: Thomas W. He	ensel Thom	as I Spensed	0		QA/QC Date:	1/10/2018	

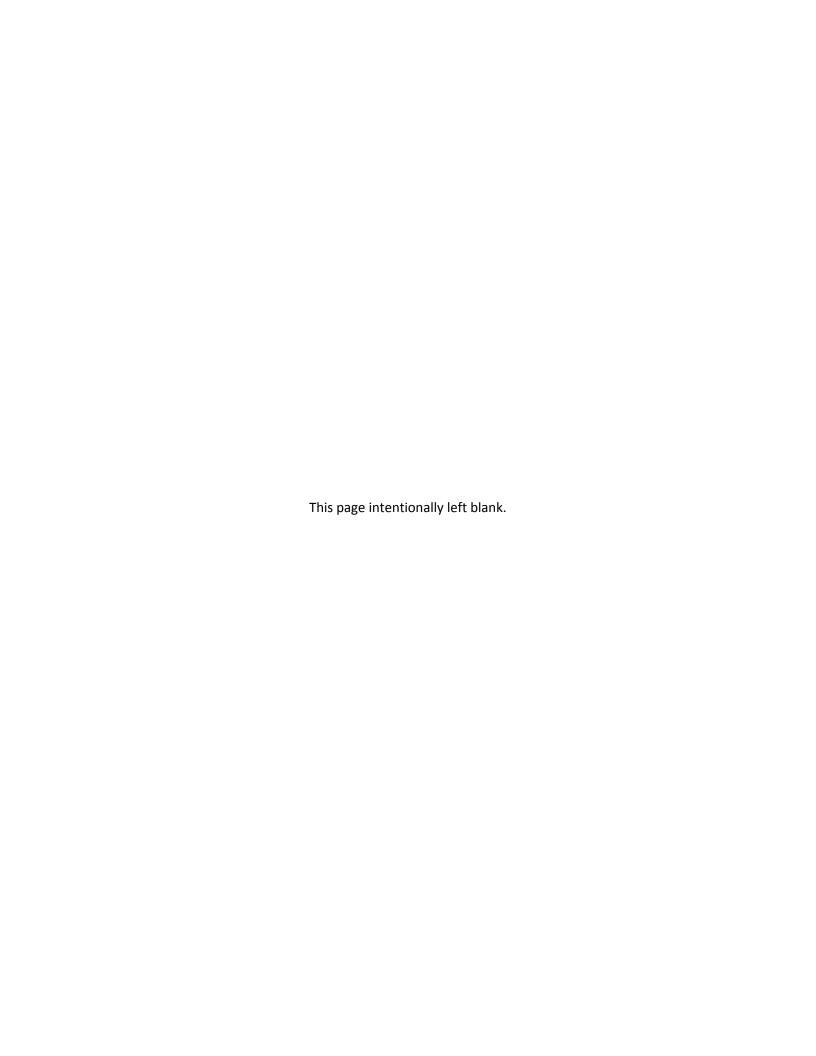


						Milecter			
Project Name:	Site Inspection of AFF Environmental Progr		Pro	eject Number:		775303101.0009.0300			
Contract:	FA8903-16-	D-0027	_ Tas	sk Order:		0004			
Installation:	DAVIS - Davis-M	onthan AFB	_ Dat	e and Time:		01/06/18 07:10			
Field Manager Name:	Kyle Kee	gan	Site	e Health and Safety Officer	(HSO):	Kyle Keegan			
Safety Meeting Type:			Regu	ular/Daily Tailgate Safety Meetir	ng				
		Ord	er of B	Business					
Topics Discussed (che			_						
Site History/Site Layout			J		5				
Scope of Work			1	-	-				
Personnel Responsibilit			2	-					
Medical Surveillance Re	equirements		Decontamination Procedures for Personnel and Equipment						
Training Requirements			1	General Emergency Procedi indicate)	ures (e.g., location	s of air horns and what 1 or 2 blasts			
Safe Work Practices				,					
Logs, Reports, Records	· -		1	Site/Regional Emergency Pr etc.)	rocedures (e.g. eai	rthquake response, typhoon response,			
Sanitation and Illuminati				,	D				
Air Surveillance Type ar			1	location of first aid kit, etc.)	ise Procedures (e.	g., exposure control precautions,			
Monitoring InstrumentsAction Levels	and Personal Monitoring		100		ra a a dura a				
✓ Action Levels Accident Reporting Production	anduran		1	Hazardous Materials Spill Pr Applicable SOPs (e.g., Hear		Program Safe Driving etc.)			
Sita Control (vioitor acco		o coourity	J	Injury/Illness Reporting Proc	•	Togram, Sale Driving, etc.)			
communications)	ess, buddy system, work zone	s, security,	1	Route to Hospital and Medic		/isit Guidelines			
Discussion of previous '	"near misses" including work o	rew suggestions to	7	Hazard Analysis of Work Ta		sical, biological and energy health			
correct work practices t Engineering Controls	o avoid similar occurrences		J	hazards and effects) Review AHAs with all parties	s engaged in the a	ctivity (EM-385 1-1, para 01.A.13.b)			
Safety suggestions by site work	kers:			Use suns	screen				
Action taken on previous sugge	estions:	Use proper PPE							
Injuries/accidents/personnel ch	anges since previous			None	e				
meeting:									
Observations of unsafe work pr developed since previous meet		None							
Location of (or changes in the le routes/safe refuge areas:	ocations of) evacuation	Craycroft Gate							
Other Safety Topics Discussed	:	NA NA							
Additional comments:				None	е				
Attendee sign	natures below indicate acknowle	dgment of the information	on and w	illingness to abide by the proced	dures discussed dur	ring this safety meeting.			
Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	Signature			
Kula Kaasas	Δ	17.61							
Kyle Keegan	AmecFW	78/z-							
Audrey Yorke	AmecFW	Arth.							
Bryan Hansen	AmecFW	Fy 124-							
Curt Carlson	YJD	Cont. Cont.							
Omar V Morales	YJD	ONT							
			-						
Meeting Condu	Incted By (print):		Compar	ny and Title		Signature			
Kyle K	eegan		AmecFW	V - Geologist	1	De la companya dela companya dela companya dela companya de la com			
QA/QC'd by: Thomas W.	Hensel Thomas	ra & Henre	l		QA/QC Date	e: 1/10/2018			



							WITCO	ici.	
Pro	ject Name:	Site Inspection of AFFI Environmental Progra		Pro	ject Number:		77530	03101.0009	
Cor	ntract:	FA8903-16-E	0-0027	Tas	k Order:			0004	
	allation:	DAVIS - Davis-Mo			e and Time:		1/29	/2018 8:06	
Fiel	d Manager Name:	Samantha S	argent	Site	Health and Safety Officer	(HSO):	Gwe	en Minnier	
Saf	ety Meeting Type:			Regu	ular/Daily Tailgate Safety Meeti	ng			
			Order	of B	usiness				
	Topics Discussed (check	all that apply):							
1	Site History/Site Layout			1	PPE Required/PPE Used				
1	Scope of Work			1	Define PPE Levels, Donning	g, Doffing Procedu	res		
1	Personnel Responsibilities	;		1	Physical Hazards and Contr	ols (e.g., overhead	d utility lines)		
1	Medical Surveillance Requ	uirements		1	Decontamination Procedure	s for Personnel an	d Equipment		
1	Training Requirements			150	General Emergency Proced	lures (e.g., location	s of air horns	and what 1 or 2 blasts	
1	Safe Work Practices			1	indicate)				
1	Logs, Reports, Recordkee	eping		to a	Site/Regional Emergency P	rocedures (e.g. ea	rthquake resp	onse, typhoon response.	
1	Sanitation and Illumination	. •		1	etc.)			, , , , , , , , , , , , , , , , , , ,	
1	Air Surveillance Type and			No.	Medical Emergency Respor	nse Procedures (e.	a exposure a	ontrol precautions	
1	Monitoring Instruments an			1	location of first aid kit, etc.)		g., <i>o</i> .,pood.o	ona or productiono,	
1	Action Levels	- · · · · · · · · · · · · · · · · · · ·		1	Hazardous Materials Spill P	rocedures			
1	Accident Reporting Proces	dures		1	Applicable SOPs (e.g., Hea		Program, Safe	Driving, etc.)	
	· · · · · ·	s, buddy system, work zones	security	J	Injury/Illness Reporting Prod	-	. rogram, care	. 2g, 0.0./	
J	communications)	s, buddy system, work zones	s, security,	1	Route to Hospital and Medic		/isit Guidelines	;	
J	Discussion of previous "ne correct work practices to a	ear misses" including work c avoid similar occurrences	ew suggestions to	J	Hazard Analysis of Work Ta hazards and effects)	asks (chemical, ph	ysical, biologic	al and energy health	
1	Engineering Controls			1	Review AHAs with all partie	s engaged in the a	ctivity (EM-38	5 1-1, para 01.A.13.b)	
Safe	ty suggestions by site worker	s:			Slips, trips, falls, and p	proper ladder usage	•		
Actio	on taken on previous suggesti	ons:			Make sure work	area is clear			
	ies/accidents/personnel chan ting:	ges since previous			N/A	A			
	ervations of unsafe work praceloped since previous meeting		N/A						
	ation of (or changes in the locales/safe refuge areas:	ations of) evacuation	Out Craycroft Gate						
	er Safety Topics Discussed:	-	N/A						
Addi	tional comments:	-	N/A						
	Attendee signatu	ures below indicate acknowle	dament of the information	and wi	illingness to abide by the proce	dures discussed du	ring this safety	meeting.	
	Attendee Name (print)	Company	Signature		Attendee Name (print)	Company	1	Signature	
	Attendee Name (print)	Company			Attendee Name (print)	Company		Signature	
	Garrett Tabor	AmecFW	165 - 200						
	Samantha Sargent	AmecFW	24						
				1					
	+								
				_					
	Meeting Conducto	ed By (print):	Co	ompar	ny and Title	,	Signa	ture	
	Samantha S	Sargent	Amec Fo	ster W	/heeler - Geologist	3	£ 149		
QA/	QC'd by: Thomas W. He	ensel I	omas & Hens	l	7	QA/QC Dat	e:	1/30/2018	

APPENDIX B-4 SOIL BORING/MONITORING WELL RECORDS



	TION			ODOLINI		TONI AND DA	TI IN 1.
	ATION:	N: 42	3433.65 E:1024225.794 (AZ State Plane)		O SURFACE ELEVAT	ION AND DA	TUM:
ORILLING CO	NTRACT	OR:	Yellow Jacket Drilling	DATE ST 10/19/1		DATE FINIS 10/26/17	
ORILLING ME	THOD:	Air R	otary Casing Hammer	371.0	DEPTH (ft.):	349.00 - 3	TERVAL (ft.): 369.00
RILLING EQU	JIPMEN		OK Arch Rig, 9 5/8" diameter casing	DEPTH 1 353 LOGGEE	TO WATER ATD (ft):	CASING: 4" dia., So	ch. 80 PVC
SAMPLING ME	ETHOD:	Wir	e line core with 3" stainless steel spoon	K. Kee		NΔI·	REG. NO
HAMMER WEI		NA	DROP: NA	S. Schi			PG9471
Sample No.	Blows/ 6 Inches	PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plastic dilatancy, toughness, dry strength, consistent			ELL CONSTE	D/OR
S	<u>8</u> <u>8</u> <u>9</u>		Surface Elevation: 2685.80 NAD88			RILLING REI	
G		123	CLAYEY SAND (SC): reddish brown (5YR 4. ~60% fine to coarse sand (subrounded/suban ~40% fines	•		- Traffic rated	
10		11.8	~70% sand (subrounded/subangular), ~25% ~5% fine gravel	o fines,		PID = MiniR photoionizat calibrated to isobutylene	ion detector
15 20		4.8	~85% sand, ~15% fines			- 12" diamete conductor ca cement seal	asing with
25-		199	~80% sand, ~15% fines, ~5% fine to coarse				
30-09-101111		3.8	SILTY SAND (SM): light reddish brown (5YR ~80% fine to coarse sand (subrounded/suban ~20% fines	**			
30 osinyed			~85% sand, ~15% fines			- 4" diameter PVC Casing	Schedule 80
45		1.2	WELL-GRADED SAND WITH SILT (SW-SM reddish brown (5YR 5/3), dry, ~90% fine to co sand (subrounded/subangular), ~10% fines	•		- Cement ben	tonite grout

0411	21.50		
DEPTH (feet) Sample No.	Blows/ 6 Inches PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
55	0.6	SILTY SAND (SM): reddish brown (5YR 5/3), dry, ~80% fine to coarse sand, ~20% fines	
60=	0.7	~75% fine to medium sand, ~25% fines (some clay)	
70	0.6	~65% sand, ~30% fines, ~5% fine gravel (subangular/angular)	Cement bentonite grout
80	7.4	WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM): reddish brown (5YR 4/3), dry, ~70% fine to coarse sand (subrounded/subangular), ~20% fine to coarse gravel (subrounded/subangular), ~10% fines	
90	5.4	LEAN CLAY (CL): reddish brown (5YR 4/3), dry, ~90% fines, ~10% fine sand, medium plasticity, no dilatancy, medium toughness, medium dry strength, firm	4" diameter Schedule 80 PVC Casing
100	0.9	LEAN CLAY WITH SAND (CL): reddish brown (5YR 4/3), dry, ~85% fines, ~15% fine sand, medium plasticity, no dilatancy, medium toughness, medium dry strength, firm	
110=	0.5		

	0.1.15					
H F F S	SAMP۱ <u>ق</u> <u>ق</u>	LES Se	Oiig	DESCRIPTION		WELL CONSTRUCTION
DEPTH (feet)	Sample No. Sample	Blows/ 6 Inches	PID Reading (ppm)	NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency		DETAILS AND/OR DRILLING REMARKS
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ကို ကိ	B 9		N/ W //	\sim	DRILLING REWARKS
				CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~80% fine to coarse sand (subrounded/subangular),		
				~20% fines		
115						
					\otimes	
120					\bowtie	
			0.5	LEAN CLAY (CL): reddish brown (5YR 5/3), moist,		
				~90% fines, ~10% fine sand, medium plasticity, no		
				dilatancy, medium toughness, medium dry strength, soft		
125						Cement bentonite grout
130			8.9			
				LEAN CLAY WITH SAND (CL): reddish brown (5YR 5/3), moist, ~80 fines, ~20% fine to medium sand,		
				medium plasticity, no dilatancy, medium toughness,		
125				medium dry strength, soft		
135					\otimes	
140			4.2	SANDY LEAN CLAY (CL): reddish brown (5YR 5/3),		4" diameter Schedule 80
				moist, ~65% fines, ~35% fine sand, medium plasticity,		PVC Casing
				no dilatancy, medium toughness, medium dry strength,		
145				soft	\otimes	
150						
150			4.9	CLAYEY SAND (SC): reddish brown (5YR 4/3), moist,		
				~65% fine to medium sand, ~35% fines	\bowtie	
155						
160			6.2	000/ 5		
				~80% fine to coarse sand, ~20% fines		
165						
	0-003					
	DAVIS01-SO-003			270% aand 220% fines		
170	DAVIE		2.9	~70% sand, ~30% fines		
1				/ /- / , }		<u> </u>

PROJECT: Site Inspection of AFFF
Davis-Monthan AFB, Tucson, AZ

Log of Well No. MW01001 (cont'd)

					, , , , ,	Log of Well No. MWW 1001 (Cont a)
DEPTH (feet)	No. In the second secon	Sample	Blows/ ਸ਼ 6 Inches	PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity dilatancy, toughness, dry strength, consistency	well construction bity, Details and/or bry Drilling remarks
175			9		CLAYEY SAND (SC): continued	Cement bentonite grout
185				1.6	SANDY SILT (ML): brown (7.5YR 5/3), moist, fines, ~35% fine sand, low plasiticity, rapid dilata low toughness, no dry strength	
190				10.0	LEAN CLAY WITH SAND (CL): reddish brown 5/3), dry, ~85% fines, ~15% fine sand, medium plasticity, no dilatancy, medium toughness, med strength, soft	n PVC Casing
200				48.6	CLAYEY SAND (SC): light reddish brown (5YF dry, ~80% fine to coarse sand (subrounded/subangular), ~20% fines	YR 6/3),
210				27.8	~70% fine to medium sand, ~30% fines	
220				42.4	~65% fine sand, ~35% fines	Cement bentonite grout
230				22.2	~80% fine to coarse sand (subrounded/subang ~20% fines	ngular),

Davis-Monthan AFB, Tucson, AZ

Log of Well No. MW01001 (cont'd)

			20g 01 1101 1101 11110 100 1 (cont u)
Sample No.	Blows/ Sample All Blows/ Solution Blows/ Seading Coom)	DESCRIPTION NAME (USCS): color, moist, % by wt., plastic dilatancy, toughness, dry strength, consister	well construction city, DETAILS AND/OR ncy DRILLING REMARKS
235		CLAYEY SAND (SC): continued	
245	23.7	SILTY SAND (SM): pinkish gray (5YR 6/2), of fine to medium sand, ~30% fines	4" diameter Schedule 80 PVC Casing
255	1.0	~85% fine to coarse sand (subrounded/subar ~15% fines SILTY SAND WITH GRAVEL (SM): pinkish	gray
265	20.4	(5YR 6/2), dry, ~70% fine to coarse sand, ~15% coarse gravel (subrounded/subangular), ~15%	
275	20.4	SILTY SAND (SM): pinkish gray (5YR 6/2), of fine to medium sand, ~20% fines	dry, ~80%
285	0.6	CLAYEY SAND (SC): reddish brown (5YR 4 ~80% fine to medium sand, ~20% fines	/3), moist,
290	0.2	~70% sand, ~30% fines	

PROJECT: Site Inspection of AFFF
Davis-Monthan AFB, Tucson, AZ

Log of Well No. MW01001 (cont'd)

DEPTH (feet) Sample	Sample Sample Blows/ Sample blows/ Sample Sa	PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticit dilatancy, toughness, dry strength, consistence	WELL CONSTRUCTION ity, DETAILS AND/OR cy DRILLING REMARKS
300		1.5	CLAYEY SAND (SC): continued ~55% sand, ~45% fines	
310		0.9	WELL-GRADED SAND WITH SILT (SW-SM) (7.5YR 5/1), ~85% fine to coarse sand (subrounded/subangular), ~10% fines, ~5% fine coarse gravel (subrounded/subangular)	
320 = 325 = 330 = 330 = 330 = 330		14.6	CLAYEY SAND (SC): reddish brown (5YR 4/3 ~75% fine to medium sand, ~25% fines	3), moist, Cement bentonite grout
335		5.5	~85% sand, ~15% fines	4" diameter Schedule 80 PVC Casing
345 ************************************		5.4	SILTY SAND (SM): reddish brown (5YR 5/3), ~75% fine to medium sand, ~25% fines	Bentonite seal Size 10/20 filter sand pack
DAVISO			CLAYEY SAND (SC): description next page	4" diameter 0.02" slot, Schedule 80 PVC Screen

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Log of Well No. MW01001 (cont'd)

DEPTH (feet) Sample No. Sample Blows/ 6 Inches PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plas dilatancy, toughness, dry strength, consist	well construction DETAILS AND/OR DETAILS REMARKS
360 2.2	CLAYEY SAND (SC): reddish brown (5YR ~65% fine to medium sand, ~35% fines, medium plasticity, no dilatancy, medium toughness, restrength, firm ~75% sand, ~25% fines	dium 📑 📄
370	~80% fine sand, ~20% fines	4.5" diameter Schedule 80 PVC end cap
385 385 390 400 405	Bottom of boring at 371' bgs.	

PROJECT:			n of AFFF an AFB, Tucson, AZ		•	No. MW02001		
BORING LO	CATION:	N: 41	9607.722 E: 1025439.018 (AZ State Plane)		GROUND SURFACE ELEVATION AND DATUM: 2711.60 NAD88			
ORILLING CO		TOR:	Yellow Jacket Drilling	DATE STA	RTED:	DATE FINISHED:		
JKILLING CO	ONTRAC	ION.	Tellow Jacket Drilling	12/19/17		12/24/17		
DRILLING MI	ETHOD:	Air R	otary Casing Hammer	TOTAL DE 308.0	ΡΙΗ (π.):	SCREEN INTERVAL (ft.): 285.00 - 305.00		
DRILLING E	AL IIDMEN	IT: 5(DK Arch Rig, 9 5/8" diameter casing	DEPTH TO	WATER ATD (ft):	CASING:		
JINILLING LO	ZOII IVILIN	11. 30	or Alcitrig, 9 5/0 diameter casing	287 LOGGED E	DV.	4" dia., Sch. 80 PVC		
SAMPLING N	METHOD:	Wir	e line core with 3" stainless steel spoon	K. Keega				
HAMMER WI	EIGHT:	NA	DROP: NA		IBLE PROFESSIO	NAL: REG. NO PG947		
_ SAI	MPLES		DESCRIPTION	S. SCHILE		/ELL CONSTRUCTION		
DEPTH (feet) Sample No.	Sample Blows/ 6 Inches	PID Reading (ppm)	NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency			DETAILS AND/OR		
Sal Co	Sa Blc 6 In	~ ~	Surface Elevation: 2711.60 NAD88		[DRILLING REMARKS		
		0.0	CLAYEY SAND (SC): reddish brown (5YR 5/3) ~75% fine to coarse sand (subrounded/subangu ~25% fines			Traffic rated well box		
5			20% intes			Hand augered to 5' bgs		
3 ₋		0.5	~65% sand, ~35% fines					
]						PID = MiniRae 3000		
10						photoionization detector		
10=		0.4				calibrated to 100 ppm		
=						isobutylene		
=								
15		2.4				12" diameter steel		
=						conductor casing with		
∄						cement seal		
20=		0.7						
		0.7	~85% fine to medium sand, ~15% fines					
=								
∄								
25		0.6			$\Rightarrow \otimes$			
					$\Rightarrow \otimes$			
, , , , , , ,					$\Rightarrow \otimes \otimes$			
30		0.5	///			- 4" diameter Schedule 80		
DAV		0.5	LEAN CLAY WTIH SAND (CL): reddish brown 5/3), moist, ~75% fines, ~25% fine to medium sa		$\Rightarrow \otimes \otimes$	PVC Casing		
∄			medium plasticity, slow dilatancy, medium tough		$\Rightarrow \otimes \otimes$			
			medium dry strength, soft	,	$\Rightarrow \otimes \otimes$			
35								
=					$\Rightarrow \otimes \otimes$			
∄								
40=		1.6	CLAVEV CAND (CC) and dish become (EVD EC)			Cement bentonite grout		
∄			CLAYEY SAND (SC): reddish brown (5YR 5/3) ~70% fine sand, ~30% fines	, most,				
∄			///					
45								
T J								
]								
]								
50		-A	<u> </u>		<u> </u>			
amec fost	er whee	ler 🧪	•	Project N	lo. 775303101.000	9.0400 Page 1 of 6		

Davis-Monthan AFB, Tucson, AZ

		N 4 17 1	<u> </u>					
DEPTH (feet)	Sample No.	Sample 🔀	Blows/ H	PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency			WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
_				0.3	CLAYEY SAND (SC): continued			
=					~85% fine to coarse sand, ~15% fines			
						$ \stackrel{\wedge}{\otimes}$		
55								
=						$ \stackrel{\times}{\Rightarrow}$		
=								
60				2.9		$ \stackrel{\wedge}{\otimes}$		
=								
=								
65						$ \Rightarrow $		
=								
						$ \gg$		
70				1.8	200/ cand - 200/ fines			
					~80% sand, ~20% fines	$ \stackrel{\times}{\parallel}$		
=								
75								Cement bentonite grout
=						$ \Rightarrow $		· ·
						$ \ge$		
80				4.0		$ \stackrel{\times}{\Rightarrow}$		
				1.9	~85% sand, ~15% fines			
=						$ \stackrel{\otimes}{\Rightarrow}$		
0.5								
85						$ \stackrel{\times}{\Rightarrow}$		
=						$ \stackrel{>}{\gg}$		
90				4.7	~75% sand, ~15% fines, ~10% fine to coarse gravel			4" diameter Schedule 80
=					(subrounded/subangular)			PVC Casing
=								
95						$ \stackrel{\times}{\Rightarrow}$		
=						$ \Rightarrow $		
=						$ \Rightarrow \rangle$		
100				0.9	DOORLY CRADED SAND WITH SILT (SP. SM.)			
					POORLY-GRADED SAND WITH SILT (SP-SM): reddish brown (5YR 5/3), moist, ~80% medium to			
=					coarse sand, ~10% fine to coarse gravel	$ \stackrel{\times}{\parallel}$		
105					(subrounded/subangular), ~10% fines	$ \stackrel{\times}{\mathbb{X}}$	$X \bowtie$	
						$ \stackrel{\wedge}{\parallel}$		
=]							
110	-				<u> </u>	$ \times$		
110	Ш			0.4	:IIII	⊥ <i>-</i> XX	X XX	

PROJECT: Site Inspection of AFFF
Davis-Monthan AFB, Tucson, AZ

	64	MPI	EC	1		
DEPTH (feet)	Sample No.	Sample	Blows/ កូ 6 Inches	PID Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
115					POORLY-GRADED SAND WITH SILT AND GRAVEL (SP-SM): reddish brown (5YR 5/3), moist, ~60% medium to coarse sand, ~30% fine to coarse gravel (subrounded/subangular to angular), ~10% fines	
120				1.4	SILTY SAND (SM): reddish brown (5YR 5/3), moist, ~65% fine sand, ~35% fines	
130				1.5	LEAN CLAY WITH SAND (CL): reddish brown (5YR 5/3), moist, ~80% fines, ~20% fine to medium sand, medium plasticity, slow dilatancy, medium toughness, medium dry strength, soft	Cement bentonite grout
140				1.5	CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~70% fine to coarse sand, ~25% fines, ~5% fine gravel	4" diameter Schedule 80 PVC Casing
150				3.5	LEAN CLAY WITH SAND (CL): reddish brown (5YR 5/3), moist, ~80% fines, ~20% fine to medium sand, medium plasticity, slow dilatancy, medium toughness, medium dry strength, soft	
165	30-003			1.2		
170	DAVIS02-SO-003			0.8	~85% fines, ~15% sand	

Davis-Monthan AFB, Tucson, AZ

Log of Well No. MW02001 (cont'd)

DEPTH (feet) Sample	Sample Sample Blows/ 6 Inches	PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., pladilatancy, toughness, dry strength, consistency	sticity, tency	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
175			LEAN CLAY WITH SAND (CL): continued		
180		1.8	CLAYEY SAND (SC): brown (7.5YR 5/3), ~70% fine sand, ~30% fines	moist,	
190		2.5	LEAN CLAY WITH SAND (CL): reddish br 5/3), ~75% fines, ~25% fine to medium sand plasticity, slow dilatancy, medium toughness dry strength, soft	d, medium	4" diameter Schedule 80 PVC Casing
200		1.7			• Cement bentonite grout
210		1.6			
220		0.9			
230		9.0	CLAYEY SAND (SC): description next pag	je – – – – – – – – – – – – – – – – – – –	

Davis-Monthan AFB, Tucson, AZ

Log of Well No. MW02001 (cont'd)

						. ,
H E SA	MPLES	oii (i	DESCRIPTION			WELL CONSTRUCTION
DEPTH (feet) Sample No.	Sample Blows/ 6 Inches	PID Reading (ppm)	NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency			DETAILS AND/OR DRILLING REMARKS
_ S	S B 9		7.9.7	-XX	XX	DITELINO NEWATIO
			CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~75% fine to coarse sand, ~25% fines			
235			/// 1070 iii.0 to cocai.co cai.i.a, 2070 iii.00			
240		2.7	0.00			
			~65% sand, ~35% fines			
245						
243						
250		0.3	~60% fine sand, ~40% fines			
255						4" diameter Schedule 80
						PVC Casing
260		0.1	~75% fine to medium sand, ~25% fines			Cement bentonite grout
			~75% line to medium sand, ~25% lines			
265						
=						
270						
270		2.3	~80% fine to coarse sand, ~20% fines			
075						
275						
280		0.9	~75% sand, ~25% fines		•	Bentonite seal
285						
]		—— 4" diameter 0.02" slot,
						Schedule 80 PVC Screen
290		0.8	2950/ pand (autrounded/autronautes) 450/ fire-		▋∙▏	Size 10/20 filter sand pack
			~85% sand (subrounded/subangular), ~15% fines			
			· · · · · · · · · · · · · · · · · · ·	L⊣©:F		
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DEPTH (feet) Sample No. Sample Blows/ Blows/ G Inches PID Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
295	CLAYEY SAND (SC): continued	4" diameter 0.02" slot, Schedule 80 PVC Screen
300 0.8	(7.5YR 5/3), moist, ~80% fine to coarse sand, ~10% fines, ~10% fine gravel (subrounded/subangular to	Size 10/20 filter sand pack
305	CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~70% fine to medium sand, ~30% fines Bottom of boring at 308' bgs.	4.5" diameter Schedule 80 PVC end cap
310		
315		
325		
330		
335		
340		
345		
350		
		<u> </u>

			n of AFFF ın AFB, Tucson, AZ		Log of Well No. MW03001			
BORING LOCATI	ION:	N: 43	5136.4 E: 1015130.153 (AZ State Plane)	GROUND 2565.49	SURFACE ELEVAT	FION AND DATUM:		
DRILLING CONT	RACT	OR:	Yellow Jacket Drilling	DATE STA	ARTED:	DATE FINISHED:		
5111221110 00111			Tonow cachet Drining	10/13/17 TOTAL DE		10/16/17 SCREEN INTERVAL (ft.):		
DRILLING METH	IOD:	Air R	otary Casing Hammer	330.0	_r	301.00 - 321.00		
DRILLING EQUIF	PMFN	T 50	DK Arch Rig, 9 5/8" diameter casing		O WATER ATD (ft):	CASING:		
				302 LOGGED	RV·	4" dia., Sch. 80 PVC		
SAMPLING METI	HOD:	Wir	e line core with 3" stainless steel spoon	K. Keeg				
HAMMER WEIGH	HT:	NA	DROP: NA	RESPONS S. Schne	SIBLE PROFESSION	NAL: REG. NO PG9471		
_ SAMPL	ES		DESCRIPTION			/ELL CONSTRUCTION		
Sample Sample Sample Sample	Blows/ 6 Inches	PID Reading (ppm)	NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency	1		DETAILS AND/OR		
o o	9		Surface Elevation: 2565.49 NAD88			DRILLING REMARKS		
DAVIS03-SO-001		0.0	CLAYEY SAND (SC): reddish brown (5YR 5/3) ~70% fine to coarse sand, ~30% fines), dry,		- Traffic rated well box Hand augered to 5' bgs		
10=		1.5	~55% fine to medium sand, ~40% fines, ~5% f gravel (subrounded/subangular)	ine		PID = MiniRae 3000		
10=		2.4	SANDY LEAN CLAY (CL): reddish brown (5YF moist, ~60% fines, ~35% fine to medium sand, ~ fine to coarse gravel, medium plasticity, no dilata	-5%		photoionization detector calibrated to 100 ppm isobutylene		
15		8.3	medium toughness, medium dry strength, soft			12" diameter steel conductor casing with cement seal		
20		8.2	~60% fines, ~40% fine to coarse sand (subrounded/subangular)					
25 =		39.2	CLAYEY SAND (SC): reddish brown (5YR 5/3) ~65% fine to coarse sand (subrounded/subangu					
30 - - - - - - - - - - - - -		6.9	~30% fines, ~5% fine gravel (subrounded/subar	ngular)		4ll diamatan Cahadala 00		
35						- 4" diameter Schedule 80 PVC Casing		
45		3.0	~70% fine to medium sand, ~30% fines			- Cement bentonite grout		
amec foster v		A.	i i			9.0400 Page 1 of 6		

DEPTH (feet)	Sample No.	Blows/ 6 Inches	PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
55			2.1	SANDY LEAN CLAY (CL): reddish brown (5YR 4/3), moist, ~65% fines, ~30% fine to coarse sand, ~5% fine gravel (subrounded/subangular), medium plasticity, no dilatancy, medium toughness, medium dry strength,	
60			13.7	~60% fines, ~40% fine to medium sand	
70			38.6		Cement bentonite grout
80_			51.1	LEAN CLAY WITH SAND (CL): reddish brown (5YR 4/3), moist, ~70% fines, ~25% fine to coarse sand, ~5% fine gravel (subrounded/subangular), medium plasticity, no dilatancy, medium toughness, medium dry strength, soft	,
90_			21.6	~60% fines, ~20% fine to coarse sand, ~20% fine gravel	4" diameter Schedule 80 PVC Casing
100			20.4	CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~70% fine to coarse sand (subrounded/subangular), ~25% fines, ~5% fine gravel (subrounded/subangular)	
110=			15.5	~70% sand, ~30% fines	

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Cheet) Sample No. Sample Sample Blows/	6 Inches PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
120_	9.0	CLAYEY SAND (SC): continued POORLY-GRADED GRAVEL WITH SAND (GP): reddish brown (5YR 5/3), moist, ~85% fine gravel (subrounded/subangular), ~15% coarse sand (subrounded/subangular)	
130	9.7	CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~85% fine to coarse sand (subrounded/subangular), ~15% fines	Cement bentonite grout
140	8.3	WELL-GRADED SAND WITH SILT (SP-SM): reddish brown (5YR 5/3), moist, ~90% fine to coarse sand (subrounded/subangular), ~10% fines	4" diameter Schedule 80 PVC Casing
150	14.3	CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~65% fine to medium sand (subrounded/subangular), ~35% fines	
160	8.9	WELL-GRADED SAND WITH GRAVEL (SW): reddish gray (5YR 5/2), moist, ~80% fine to coarse sand (subrounded/subangular), ~15% fine to coarse gravel (subrounded/subangular), ~5% fines	
170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170 170	15.3	CLAYEY SAND WITH GRAVEL (SC): description next page	

Davis-Monthan AFB, Tucson, AZ

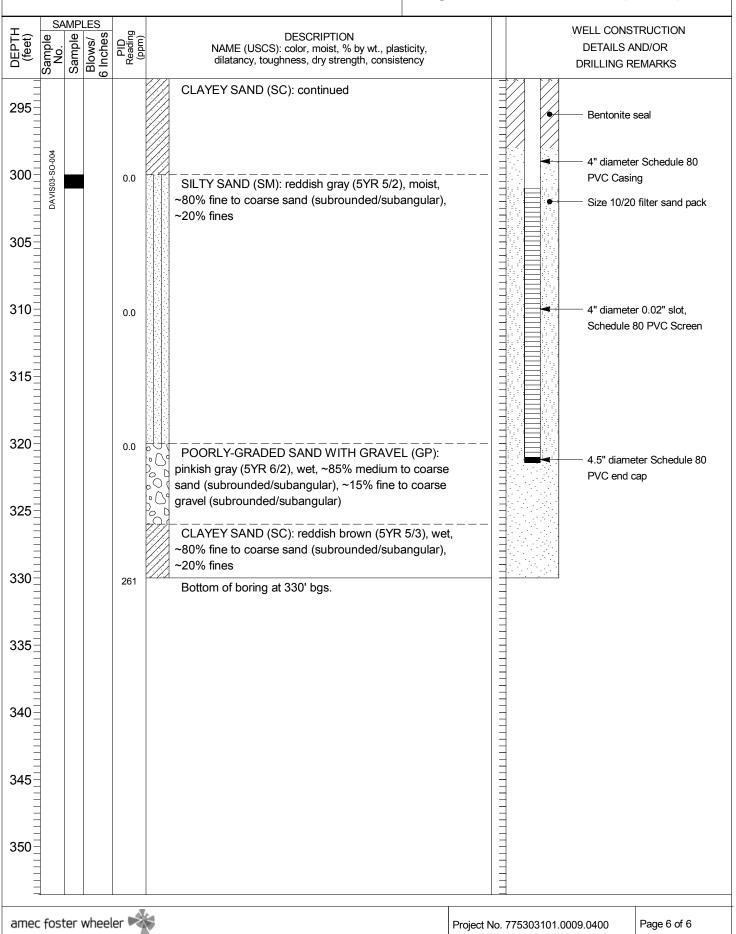
1 S	AMPLES		DESCRIPTION	WELL CONSTRUCTION
DEPTH (feet)	mple ws/	PID Reading (ppm)	NAME (USCS): color, moist, % by wt., plasticity,	DETAILS AND/OR
DEPTH (feet) Sample	Sample Blows/ 6 Inches	_ % <u> </u>	dilatancy, toughness, dry strength, consistency	DRILLING REMARKS
			CLAYEY SAND WITH GRAVEL (SC): reddish brown	
			(5YR 5/3), moist, ~55% fine to coarse sand	
175			(subrounded/subangular), ~30% fine to coarse gravel	
175			(subrounded/subangular to angular), ~15% fines	
180		30.6	CLAVEY CAND (CC) raddish brawn (EVD E(2) rasist	XX
			CLAYEY SAND (SC): reddish brown (5YR 5/3), moist, ~75% fine to medium sand, ~25% fines	
			75% line to medium sand, ~25% lines	
185				
=				
190				411 diagraphy Cabadyla 22
190		40.6	~75% fine sand, ~25% fines	4" diameter Schedule 80 PVC Casing
			/ /	FVC Casing
195				
200		243	950/ aand - 150/ fines	Cement bentonite grout
			~85% sand, ~15% fines	
205				
210				
210		310	~80% fine to coarse sand (subrounded/subangular),	
			~15% fines, ~5% fine gravel (subrounded/subangular)	
215				
220		0.3		
225				
223				
=				
230		0.4		
		I	X / N	I -VVV VVV

Davis-Monthan AFB, Tucson, AZ

Log of Well No. MW03001 (cont'd)

DEPTH (feet) Sample No.	Sample Management Sample Sampl	PID Reading (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., pla dilatancy, toughness, dry strength, consis	sticity, stency	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
235			CLAYEY SAND (SC): continued		
240		4.1	~75% fine to medium sand, ~25% fines		
250		9.0	~80% fine to coarse sand (subrounded/su ~20% fines	ibangular),	
255		167	~70% fine sand, ~30% fines		4" diameter Schedule 80 PVC Casing Cement bentonite grout
265		160			
275					
280 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 285 = 2		18.3	~80% fine to coarse sand, ~15% fines, ~5 gravel	% fine	
290		257	~80% sand, ~20% fines		

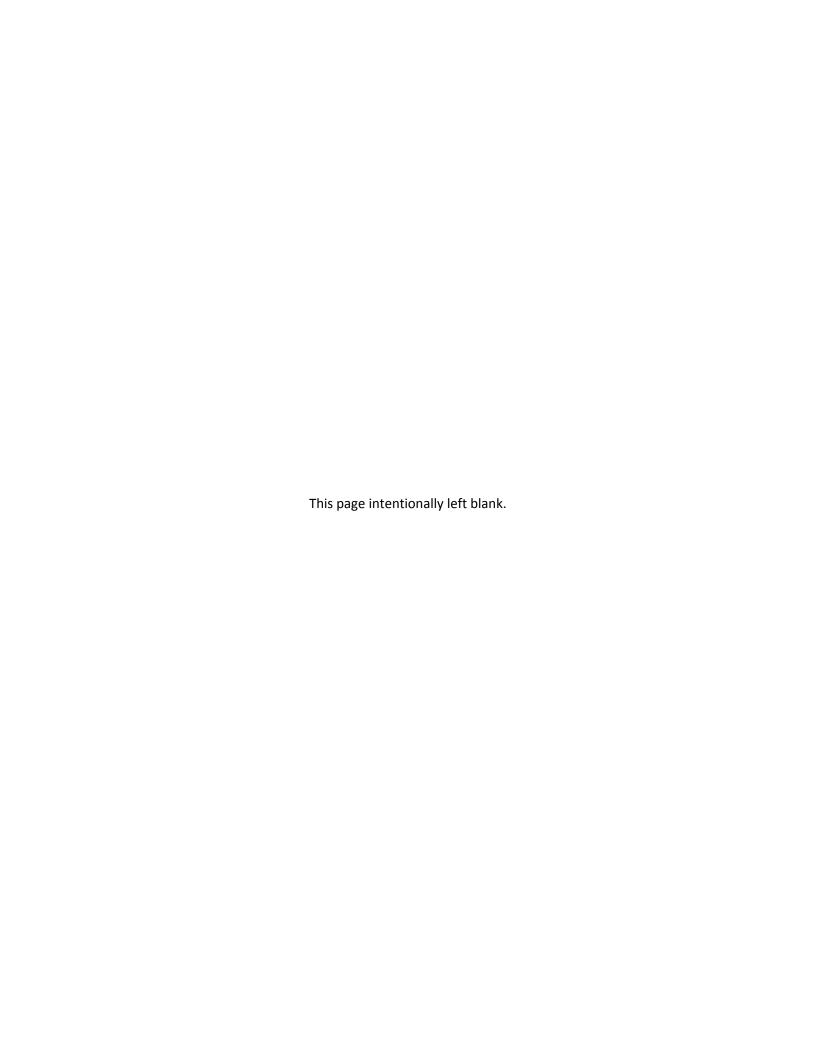
Davis-Monthan AFB, Tucson, AZ



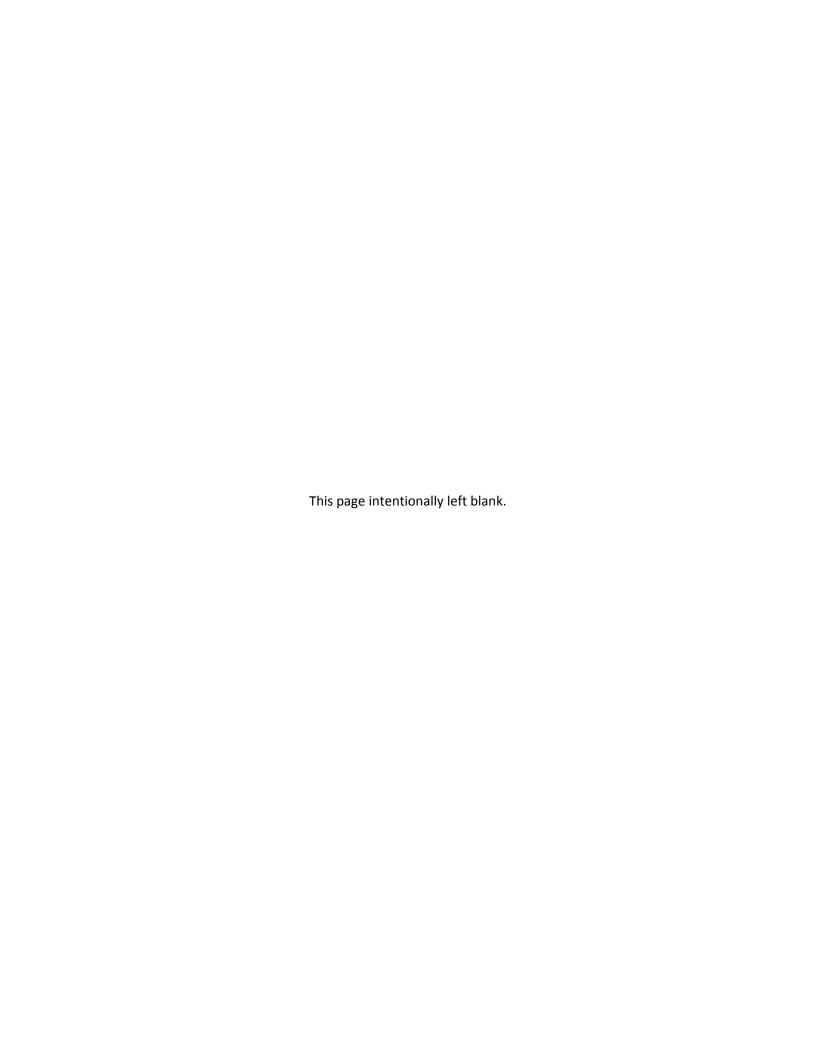
	spection of AFFF Monthan AFB, Tucson, AZ	Log	Log of Boring No. SB01002				
RING LOCATION:	N: 423180.527 E: 1024423.416 (AZ State Plane)	ELEVATION A 2688.71 NA					
ILLING CONTRAC	TOR: Yellow Jacket Drilling	DATE STARTE 10/16/17	ED:	DATE FINIS 10/16/17			
RILLING METHOD:	Air Rotary Casing Hammer	TOTAL DEPTH	H (ft.):	MEASURIN NA			
RILLING EQUIPME	NT: 50K Arch Rig, 9 5/8" diameter casing	DEPTH TO	FIRST	COMPL.	24 HRS.		
	: Wire line core with 3" stainless steel spoon	WATER (ft): LOGGED BY:	NA	INA	INA		
MMER WEIGHT:	NA DROP: NA	G. Tabor RESPONSIBLE		NAL:	REG. NO		
SAMPLES	DESCRIPTION	S. Schneide			PG947		
Sample No. Sample Blows/	NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency		PID READING (ppm)	RE	EMARKS		
Sar Sar Sar Blo	Surface Elevation: 2688.71 NAD88		RE,				
0-005	SILTY SAND (SM): reddish brown (5YR 4/3), moist, ~6		134.4				
DAVIS01-SO-005	fine to medium sand, ~30% low plasticity fines, ~5% fir	e gravel					
DAVIE							
5	SILTY SAND (SM): light reddish brown (5YR 6/4), dry,		1.7	Hand augered to 5' bgs			
	fine to medium, ~25% nonplastic fines	-10% very					
_							
_				PID = MiniF	Rae 3000		
			1.4		ation detector		
0-	SILTY SAND (SM): yellowish red (5YR 5/6), dry, ~70%	sand,	- '	calibrated to			
]	~30% nonplastic fines						
]							
_							
5-			0.6				
			_				
_							
_			_				
7							
0	950/ gand - 150/ fines		0.6				
]	~85% sand, ~15% fines		3				
_	[2] [M.C] [2] [3] [4] [3] [4] [4]						
_							
5-	POORLY-GRADED SAND WITH SILT (SP-SM): redd	ish brown	0.9				
	(5YR 5/4), dry, ~90% very fine to medium sand, ~10%						
7	fines						
900-0							
0 	SILTY SAND (SM): reddish brown (5YR 5/4), dry, ~75	% very fine	0.2				
J DAVII	to medium sand, ~25% nonplastic fines						
	Bottom of boring at 31.5' bgs.						
	3						
]							
5	Ab .	Dre-	oct No	<u> </u>			
ec foster wheele	•		ect No. 303101.0009.0)400	Page 1 of 1		

RMRK3

Davis-Monthan AFB, Tucson, AZ	Log	of Borin	g No. S	B01003	
BORING LOCATION: N: 423455.637 E: 1024773.282 (AZ State Plane)	ELEVATION A 2691.47 NA				
DRILLING CONTRACTOR: Yellow Jacket Drilling	DATE STARTE 10/16/17	ATE STARTED: DATE FINISHED: 0/16/17 10/16/17			
DRILLING METHOD: Air Rotary Casing Hammer	Casing Hammer TOTAL DEPTH (ft 31.0			IG POINT:	
DRILLING EQUIPMENT: 50K Arch Rig, 9 5/8" diameter casing	FIRST NA	COMPL.	24 HRS. NA		
SAMPLING METHOD: Wire line core with 3" stainless steel spoon	LOGGED BY: G. Tabor				
HAMMER WEIGHT: NA DROP: NA	RESPONSIBLE PROFESSIONAL: S. Schneider			REG. NO. PG9471	
SAMPLES DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency		PID READING (ppm)	RI	REMARKS	
NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency Surface Elevation: 2691.47 NAD88		REA (p			
SILTY SAND (SM): reddish brown (5YR 4/4), moist, ~6	60% very	1.6	Hand augo	ured to 5' bas	
SILTY SAND (SM): reddish brown (5YR 5/4), dry, ~55' to fine sand, ~45% nonplastic fines	% very fine	0.3	PID = Minif	ation detector o 100 ppm	
CLAYEY SAND (SC): reddish brown (5YR 4/4), moist, fine to fine sand, ~35% low to medium plasticity fines		0.5			
POORLY-GRADED SAND WITH SILT (SP-SM): yellow (5YR 6/6), ~90% very fine to medium sand, ~10% non fines		1.5			
25 ~ ~85% sand, ~10% fines, ~5% gravel		0.3			
Bottom of boring at 31' bgs.					
amec foster wheeler		ect No. 303101.0009.0	1400	Page 1 of 1	



APPENDIX B-5 WELL CONSTRUCTION FORMS





SCREENED WELL CONSTRUCTION FORM

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide, Contract FA8903-16-D-0027 Task Order 0004

Project:	Contract FA8903-	16-D-0027 Task Order 00	004	Installation:	Davis Monthan AFB	
Location ID:		AFFF Release Area 01		Well ID:	MW01001	
Drilling Subco	g Subcontractor: Yellow Jacket Drilling		Installation Date:	10/27/2017		
Drilling Personnel: Tony Valentine			Project Number: 775303101.0009.0300			
Amec Foster	Wheeler Field Repre	esentative(s):		Kyle Keegan		
			1111	5 6 .		
Measuremen	, ,	2696.07		Protective Casing:	ush Mount Stool Conductor Cooling	
Elevation (ft r		2686.07		Type: <u>Fl</u> i Dimensions (ir	ush Mount Steel Conductor Casing n): 12" Diameter	
Land Surface	Elevation (ft):	2685.80		Stickup (ft):	NA	
Land Odnacc		2000.00		Length (ft):	21' bgs	
Approximate	Diameter			Guard Post:	NA	
of Borehole (in): 10						
`	,			Surface Pad:		
Depth to Wat	er (ft):			Dimensions:	2' Diameter	
During Dri	lling:	351.74		Type:	Sonotube Flush Mount Well Vault	
Date:		10/27/2017				
Post Deve	elopment:	351		Annular Seal:		
Date:		1/3/2018		Type:	Baroid Bentonite Grout	
				Installation: Gr	ravity Tremie Pumped	
Hydro Unit:	Unknown	Unsaturated Zone				
	Aquifer	Water Table Aquifer		Bentonite Seal:		
	Bedrock Aquifer	Confining Layer/Aqui		Manufacturer:		
	Perched Aquifer	Lower/Confined Aqui	iter	Type: Ch Installation:	hips Pellets Slurry 6-in lifts One Section	
Water added	during				ravity Tremie Pumped	
drilling (gal):	during	< 300			(hrs): 0.5	
Water remove	ed durina			Trydradon amo	(110).	
development	-	177.5		Filter Pack Material:		
·				Manufacturer:	Colorado Silica	
				Product Name	: Sand Pack	
Top of Benton	nite Seal (ft):	341		Size:	10/20 Sand	
		_		Installation Typ	pe: Gravity Tremie	
Top of Filter F	Pack (ft):	346		Surging time:	30 min	
				Well Casing (riser):		
				Manufacturer:	Monoflex	
				Type/Material:	Schedule 80 PVC	
				Diameter (in):	4"	
Top of Screen	n Interval (ft):	349	→	=		
				Well Screen:		
				Manufacturer: Type/Material:		
Pottom of So	rooped Interval (ft):	360 ¬		7.		
Bottom of Screened Interval (ft): 369		Diameter (in): Slot Size (in):	0.020"			
Bottom of Filt	er Pack (ft):	371		Slot Type:	Continous Factory slot	
Bottom of Bo	· · · —	371	•	26 -	,	
	-	and surface unless specified TO	C	Sump/End Cap:	End Cap at 369'	
All elevations are	referenced to MSL (NAV	'D 88).		· <u></u>		

Rev. 2, Date: 12/02/2015



SCREENED WELL CONSTRUCTION FORM

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide, Contract FA8903-16-D-0027 Task Order 0004

Project: Contract FA8903-16-D-0027 Task Order 0004				Installation:	Dav	Davis Monthan AFB		
Location ID:		AFFF Release Area 02		Well ID:		MW02001		
Drilling Subcont	tractor:	Yellow Jacket Drilling		Installation Date	:	12/22/2017		
Drilling Personn	lling Personnel: Tony Valentine			Project Number: 775303101.0009.0300				
Amec Foster Wheeler Field Representative(s):			Kyle Keegan, Audrey Yorke					
Measurement P	, ,	2711.44		Protective Casing:	Flush M	ount Conduct	tor Casing	
`	, <u> </u>			Dimensions (neter	
Land Surface E	Elevation (ft):	2711.60		Stickup (ft):		NA		
				Length (ft):		21' bg	js	
Approximate Diameter			Guard Post:		NA			
of Borehole (in): 10								
Donth to Water	· (#\).			Surface Pad:		2' Diamet		
Depth to Water During Drillir	• •	287.30		Dimensions: Type:	Sonotu		ınt Well Vault	
Date:		12/22/2017		Type.		<u>bo i idon Moc</u>	ant won vaut	
Post Develo		282.54		Annular Seal:				
Date:		1/5/2018		Type:	Bar	roid Bentonite	Grout	
				Installation: 0	avity	Tremie	Pumped	
Hydro Unit:	Unknown	Unsaturated Zone						
	Aquifer	Water Table Aquife		Bentonite Seal:				
	Bedrock Aquifer	Confining Layer/Aqu		Manufacturer		ik-Gel/Baroid		
ļ	Perched Aquifer	Lower/Confined Aqu	uiter	Type: C Installation:	hips 6-in l		Slurry One Section	
Water added du	urina				Gravity	Tremie		
drilling (gal):	umg	< 2000		Hydration tim	•		1.5	
Water removed	I during			•	`			
development (g	jal):	158		Filter Pack Material	:			
				Manufacturer	:	Colorado S	ilica	
				Product Nam	e:	Sand Pag	ck	
Top of Bentonite	e Seal (ft):	278	>	Size:		10/20 Sai		
T (E'' D.	-1 (6)	٦ م	→	Installation Ty		,	Tremie	
Top of Filter Pa	<u></u>	283		Surging time:		30 min		
				Well Casing (riser):				
				Manufacturer		Bill Johns		
				Type/Material		Schedule 80	PVC	
Tf C !		005		Diameter (in)	:	4"		
Top of Screen I	Interval (π):	285	→	Well Screen:				
				Manufacturer		Bill Johns	on	
				Type/Material		Schedule 80	,	
Bottom of Screened Interval (ft): 305			Diameter (in)		4"			
			Slot Size (in):	0.020"				
Bottom of Filter	Pack (ft):	308		Slot Type:	Contino	us Fa	ctory slot	
Bottom of Borel	hole (ft):	308						
Depths and heights are referenced to ground surface unless specified TOC.				Sump/End Cap:		End Cap at 305'		

Rev. 2, Date: 12/02/2015

All elevations are referenced to MSL (NAVD 88).

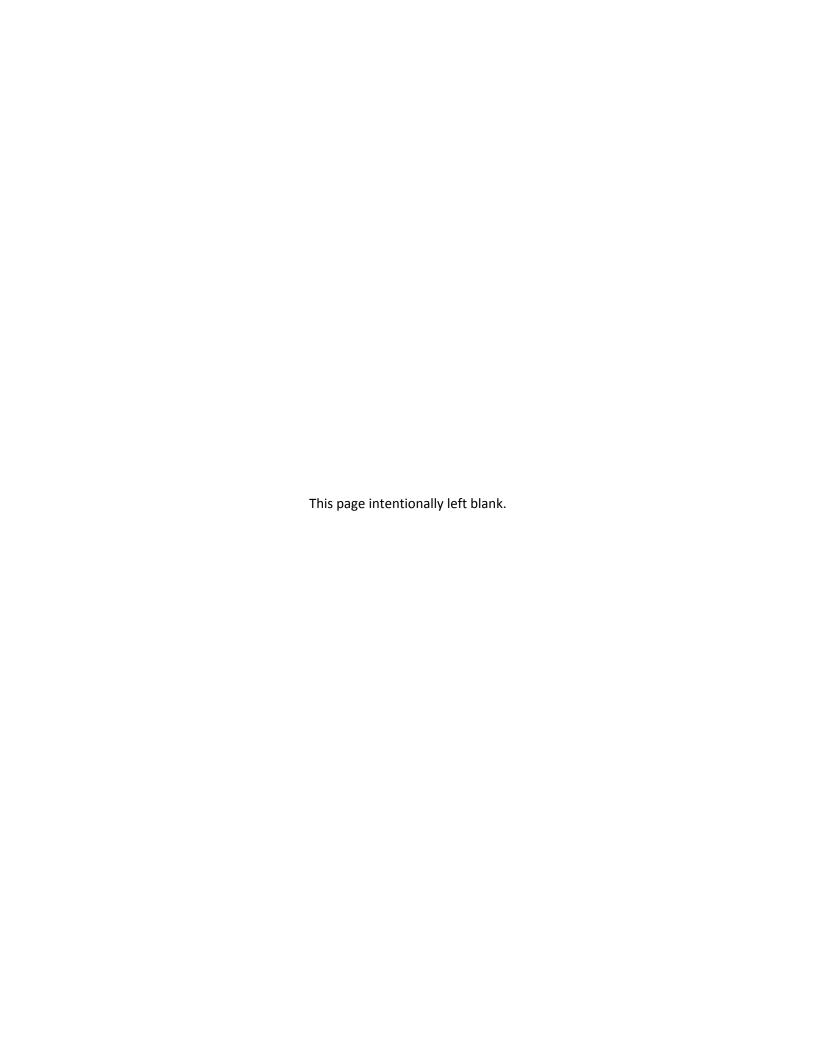


SCREENED WELL CONSTRUCTION FORM

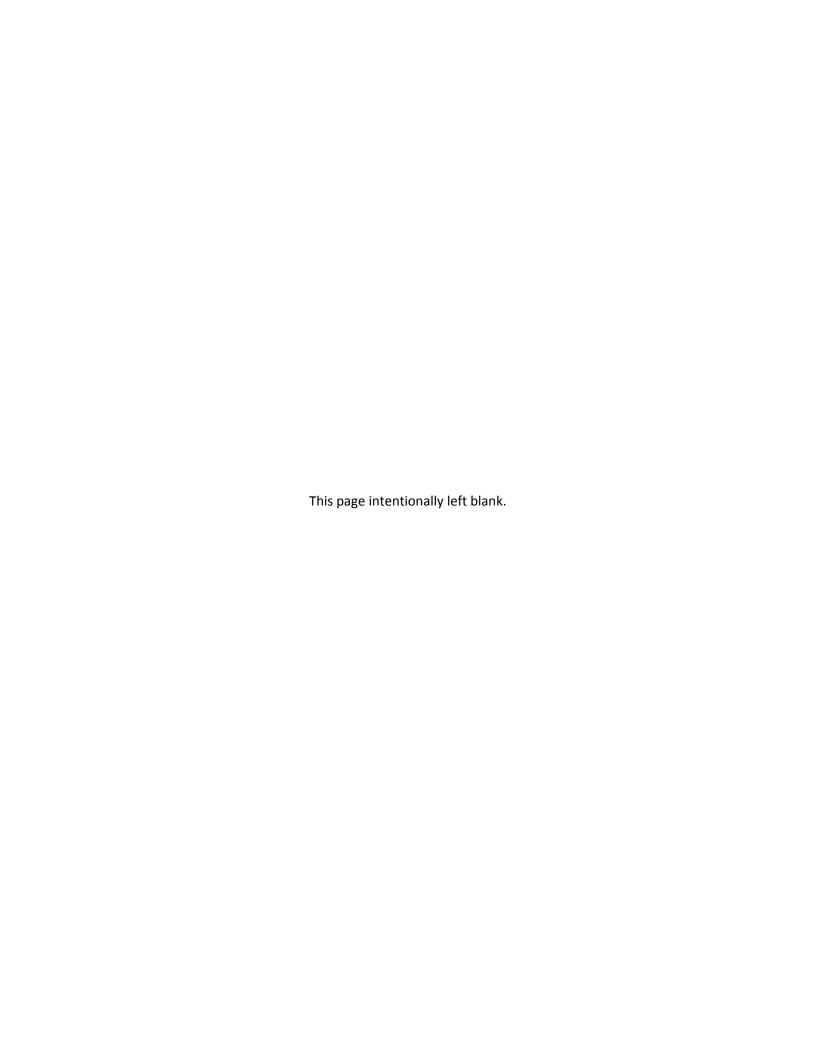
Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide, Contract FA8903-16-D-0027 Task Order 0004

Project:	Contract FA8903	3-16-D-0027 Task Order (0004	Installation:	Davis Monthan AFB	
Location ID:		AFFF Release Area 03		Well ID:	MW03001	
Drilling Subco	g Subcontractor: Yellow Jacket Drilling		Installation Date:	10/16/2017		
Drilling Personnel: Tony Valentine			Project Number: 775303101.0009.0300			
Amec Foster	Wheeler Field Rep	oresentative(s):		Kyle Keegan		
	t Point (riser)			Protective Casing:		
Elevation (ft r	msl):	2565.37		Type:	Flush Mount Conductor Casing	
	E	0505.40		Dimensions (in	· -	
Land Surface	e Elevation (ft):	2565.49		Stickup (ft):	NA OUL	
Annrovimato	Diameter			Length (ft): Guard Post:	21' bgs NA	
Approximate Diameter of Borehole (in): 10			Guard Post.	INA		
or poreriole (10		Surface Pad:		
Depth to Wat	ter (ft):			Dimensions:	2' Diameter	
During Dri	illing:	303.11		Type:	Sonotube Flush Mount Well Vault	
Date:		10/16/2017				
Post Deve	elopment:	304.26		Annular Seal:		
Date:		1/4/2018		Туре:	Baroid Bentonite Grout	
				Installation: Gr	ravity Tremie Pumped	
Hydro Unit:	Unknown	Unsaturated Zone				
	Aquifer	Water Table Aquife		Bentonite Seal:		
	Bedrock Aquifer			Manufacturer:		
	Perched Aquifer	Lower/Confined Aq	uifer		nips Pellets Slurry	
Water added	during			Installation:	6-in lifts One Section ravity Tremie Pumped	
Water added drilling (gal):	during	900			ravity Tremie Pumped (hrs): 0.5	
Water remov	red during	900		riyuration time	(1115). 0.5	
development	-	182		Filter Pack Material:		
					Colorado Silica	
					: Sand Pack	
Top of Bento	nite Seal (ft):	293		Size:	10/20 Sand	
		ŗ		Installation Typ	pe: Gravity Tremie	
Top of Filter I	Pack (ft):	298		Surging time:	30 min	
				Well Casing (riser):		
				Manufacturer:	Monoflex	
				Type/Material:		
				Diameter (in):	4"	
Top of Scree	n Interval (ft):	301				
				Well Screen:		
				Manufacturer:	Monoflex	
				Type/Material:	Schedule 80 PVC	
Bottom of Sc	reened Interval (ft):	321		Diameter (in):		
			Slot Size (in):	0.020"		
Bottom of Filt		328		Slot Type:	Continous Factory slot	
Bottom of Bo	` '	328		0/5	F. 10 100#	
	•	ound surface unless specified T	OC.	Sump/End Cap:	End Cap at 321'	
All elevations are	e referenced to MSL (NA	Ανυ δδ).				

Rev. 2, Date: 12/02/2015



APPENDIX B-6 WELL DEVELOPMENT FORMS





WELL DEVELOPMENT LOG

wheeler											
Project Name:					Release Are		Project N	umber:			775303101.0009
Contract:			F	A8903-16-E	0-0027		Task Orde	er:	•		0004
Installation:			DAVIS	S - Davis-Mo	onthan AFB		Date Star	ted/Date Co	ompleted:		01/02/18 / 01/02/18
Well ID:				MW0100	01		Initial Dep	oth to Wate	r (ft):		350.9
Measuring Point				Top of Cas			-	th of Well (369.0
Development Me				PUMPE			-		Purging (ft):		352.22
Total Volume Pu	irged (gal):			5 (~55 gallo	ns bailed)			Volume (ga			11.97
Technician(s):	1		Samanth	a Sargent	1	Specific	3 Casing	Volumes (g	jai):		35.91
Date/Time	Intake Depth (feet)	Water Level (feet)	Rate (gpm)	Temp. (°C)	pH (units)	Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Cum. Volume (gal.)	Comments/Observations During Purging (color, sediment, etc.)
01/02/18 13:53			1.6								Pumping Started
01/02/18 14:10	360	351.8	1.6	27.97	7.69	0.386	5.96	110.1	Over	19.5	Cloudy brown/orange
01/02/18 14:20	360	351.78	1.6	28.59	7.75	0.400	5.43	103.8	462	32.5	Cloudy
01/02/18 14:30 01/02/18 14:40	360 360	352.15 352.2	1.6 1.6	28.43 27.97	7.75 7.75	0.398 0.398	5.17 4.99	93.9 86.4	226 96.8	52.5 72.5	Clearing up Clear
01/02/18 14:50	360	352.2	1.6	28.02	7.75	0.396	5.04	79.7	38.2	92.5	Olcai
01/02/18 15:00	360	352.22	1.6	28.13	7.75	0.397	5.10	73.7	15.2	112.5	
01/02/18 15:05	360	352.22	1.6	28.19	7.75	0.395	5.10	72.8	9.78	122.5	
Instruments (N Equipment Calibrate		, Model, a		l No.): es		Calibrated Within	Criteria (Y/N)	:			Yes
				Turbidity I		Quality Meter, Wa 2100Q 30257, YSI			Pump		
Calculations:											Signature:
Saturated well c	aaina valuma	. \/= U/D/	2\⊔*7 40 ∝	οl/ftΛ2							
V = Volume (gal/ft) = 3.14 R = well radius (ft) = H = height of water ((well diameter (i		, .	ai/it 3		=∏ * (6.0	(in)/12 (in/ft)	!)H*7.48 gal/ft)/2)^2 * 18.10 26.7 gal.	^3 * 7.48 gal/ft^3		SHOS
Notes:											Name (print):
Water started out as a brown orange											Samantha Sargent
QA/QC'd by:	Thomas W. F		1/5/2018								



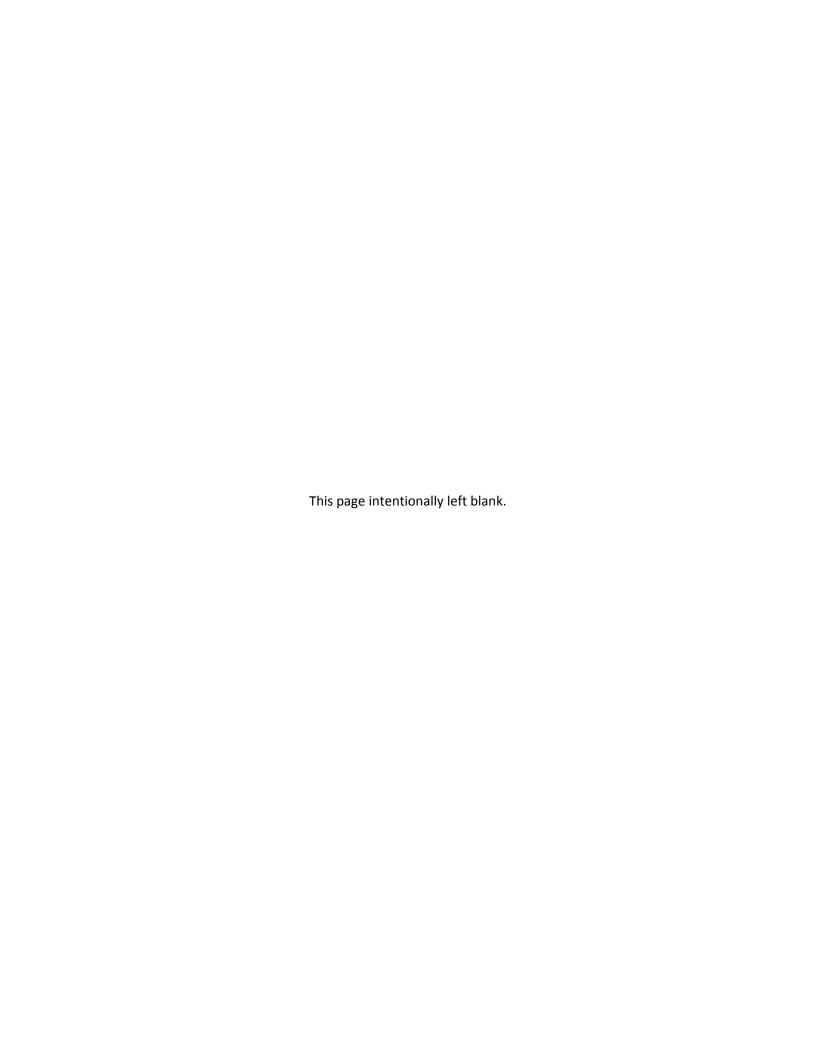
WELL DEVELOPMENT LOG

wheeler											
Project Name:					Release Are		Project N	umber:			775303101.0009
Contract:			F	A8903-16-E	0-0027		Task Ord	er:			0004
Installation:	•		DAVIS	S - Davis-Mo	onthan AFB		Date Star	ted/Date Co	ompleted:		01/03/18 / 01/03/18
Well ID:				MW0300)1		Initial De	pth to Wate	r (ft):		302.08
Measuring Point				Top of cas				oth of Well (•		321.0
Development Me				PUMPE			-		Purging (ft):		304.04
Total Volume Pu	rged (gal):			2 (~55 gallon				Volume (ga			12.4
Technician(s):		Αι	udrey Yorke,	Bryan Hans	sen		3 Casing	Volumes (g	jal):		37.2
Date/Time	Intake Depth (feet)	Water Level (feet)	Rate (gpm)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Cum. Volume (gal.)	Comments/Observations During Purging (color, sediment, etc.)
01/03/18 13:42			2.2								Pumping Started
01/03/18 13:52	311	304.04	2.2	27.24	7.85	0.466	5.51	133.5	Out of Range	22	Cloudy, brown
01/03/18 14:02	311	304.04	2.2	27.85	7.81	0.465	5.31	128.2	220	44	Cloudy
01/03/18 14:07	311	304.04	2.2	27.87	7.80	0.464	5.23	125.4	144	55	Cloudy
01/03/18 14:12	311	304.04	2.2	27.87	7.80	0.463	5.18	119.5	72.6	66	Slightly cloudy
01/03/18 14:17	311	304.04	2.2	27.91	7.80	0.463	5.20	116.3	42.2	77	Clear
01/03/18 14:22	311	304.04	2.2	27.91	7.80	0.464	5.21	112.1	23.8	88	Clear
01/03/18 14:27	311	304.04	2.2	27.84	7.79 7.79	0.463 0.461	5.17	109.1	17.0	99 110	Clear Clear
01/03/18 14:32 01/03/18 14:37	311 311	304.04 304.04	2.2	27.78 27.76	7.79	0.461	5.19 5.13	106.2 104.2	9.27 8.99	121	Clear
01/03/18 14:42	311	304.04	2.2	27.72	7.78	0.460	5.13	104.2	8.89	132	Clear
01/03/16 14.42	311	304.04	2.2	21.12	7.70	0.400	5.14	103.3	6.69	132	Clear
Instruments (M Equipment Calibrate		, Model, a		l No.): ′es		Calibrated Within	Criteria (Y/N)):			Yes
				Turbidity !		Quality Meter, Wa 100Q 30257, YSI			Pump		
Calculations:		V =(D4	0)1147 40	LISTAG							Signature:
Saturated well co V = Volume (gal/ft) = 3.14 R = well radius (ft) = H = height of water of	(well diameter (i		, .	al/ft^3		=∏ * (4.0	(in)/12 (in/ft)	2)H*7.48 gal/ft))/2)^2 * 18.92 12.4 gal.	^3 * 7.48 gal/ft^3		Mar
Notes:											Name (print):
					None						Audrey Yorke
QA/QC'd by:	Thomas W. H	lensel	C les	Thomas	25 Men	wel		(QA/QC Date:		1/5/2018

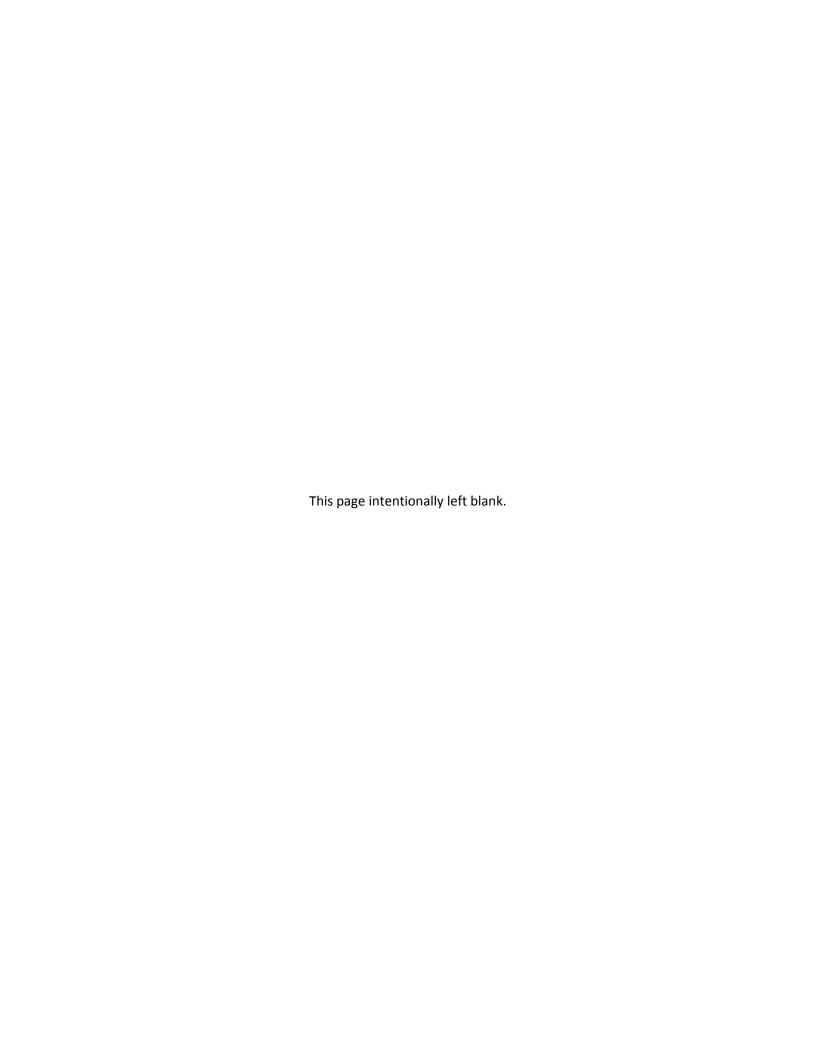


WELL DEVELOPMENT LOG

wheeler											
Project Name:					Release Are		Project Nu	umber:			775303101.0009
Contract:			F	FA8903-16-D)-0027		Task Orde	er:			0004
Installation:			DAVI	S - Davis-Mo	nthan AFB		Date Start	ed/Date Co	mpleted:		01/04/18 / 01/04/18
Well ID:				MW0200)1		Initial Dep	th to Water	(ft):		282.53
Measuring Point	:			Top of Cas	sing		Total Dept	th of Well (f	t):		305.0
Development Me	thod:			PUMPE	D		Depth to V	Nater After	Purging (ft):		282.94
Total Volume Pu	rged (gal):		~158 ga	allons (~55 g	allons bailed)		1 Casing \	Volume (gal):		14.7
Technician(s):		Audrey \	Yorke, Bryan	Hansen, Kyl	e Keegan		3 Casing \	Volumes (ga	al):		44.2
Date/Time	Intake Depth (feet)	Water Level (feet)	Rate (gpm)	Temp. (°C)	pH (units)	Specific Electrical Conductance	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Cum. Volume (gal.)	Comments/Observations During Purging (color, sediment, etc.)
01/04/18 15:20		` '	3.6			(mS/cm)				,,,	Pumping Started
01/04/18 15:25	300	282.91	3.6	26.49	7.97	0.468	7.10	92.7	13.1	18	Clear
01/04/18 15:30	300	282.93	3.6	26.81	7.80	0.467	6.08	84.4	2.79	36	Clear
01/04/18 15:35	300	282.93	3.6	26.79	7.78	0.465	6.01	82.6	1.33	54	Clear
01/04/18 15:40	300	282.94	3.6	26.85	7.76	0.464	5.98	79.9	1.04	72	Clear
01/04/18 15:45	300	282.94	3.6	26.87	7.74	0.465	5.94	78.9	0.66	90	Clear
01/04/18 15:50	300	282.94	3.6	26.73	7.75	0.465	5.90	78.4	0.60	108	Clear
					-		+				
					-		+				
							+				
Instruments (M Equipment Calibrate		Model, a		No.): ⁄es		Calibrated Within	Criteria (Y/N):				Yes
				Turbidity		Quality Meter, Wa 2100Q 30257, YSI			ump		
Calculations:											Signature:
V = Volume (gal/ft) = 3.14 R = well radius (ft) = H = height of water of	(well diameter (ir		-	/π^3		=∏ * (4.	.0 (in)/12 (in/ft)	:)H*7.48 gal/ft/)/2)^2 * 22.47 14.7 gal.			MI
Notes:											Name (print):
Notes.					None						Audrey Yorke
QA/QC'd by:	Thomas W. H	ensel	ć	Thomas	25.4	Jensel		(QA/QC Date:		1/5/2018



APPENDIX B-7 WATER QUALITY SAMPLING INSTRUMENT CALIBRATION FORMS





Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide Project N									77530	3101.0009
Contract:		FA	8903-16-D-0)027	Task Order:	0004		Date:		-	01	1/02/18
Installation:				DAVIS -	Davis-Monthan AFB			Calibra	tion Start T	ime:		10:59
Sample Techni	cian(s):			San	nantha Sargent			Calibra	tion End Ti	me:		11:24
					Reading	s Before Ca	alibration					
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (mg/L)	Salinity (%)	ORP/Eh (mV)	Pres	metric ssure n Hg)	Сол	mments
01/02/18	10:59	14	3.99 7.02 10.01	10.4 20.4 101 815	1.428	112	NA	239.8		5.83		None
					Reading	gs After Cal	libration					
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (mg/L)	Salinity (%)	ORP/Eh Barometric Pressure (mV) (mm Hg)		sure	Cor	mments
01/02/18	11:23	15	4.01 7.00 10.00	10 20 100 800	1.413	100.7	NA	240.0	766	3.85		None
Calibration Ma	aterials Recor	d: Calibration Standa	ırds		Specific Electrical Cond		ty, Dissolved O		Oxidation		Turbidity Sta	ındards
Standard pH (4)	<u></u>	ndard Lot# GF303		ration Date	Standard Spec. Conductance	Cal. Stan	dard Lot #	Expiration 08/01/		Standard 10	Cal. Standard Lot #	Expiration Date 01/05/18
pH (7)	70	GG488	C	07/05/19	Salinity		NA .	01/02/	18	20	A6287	01/05/18
pH (10)	70	GG543	0	07/01/19	D.O. ORP		NA 7021	01/02/ ⁻ 03/05/2		100 800	A6286 A6287	01/05/18 01/05/18
Instruments (I Water Quality N Turbidity Meter Calibrated Within	Meter: ::	Model, and Seria Manufacture YSI 556 I Hach 21	er/Model	Serial No 13916 30257 Yes	Notes:	lone		Signature	5	MAR		
If No, Provide Ex	,	,	NA							Name (pri	nt):	Samantha Sargent
QA/QC'd by:		Thomas W. Hense	J	Thom	as I Hensel				QA	/QC Date:	1/	/5/2018



Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide Project Number:								77530	3101.0009	
Contract:		FA	8903-16-D-0	0027	Task Order:	0004		Date:		_	01	1/03/18
Installation:				DAVIS -	Davis-Monthan AFB			Calibrat	ion Start 1	ime:	(07:20
Sample Techni	ician(s):			San	nantha Sargent			Calibrat	ion End T	ime:	(07:33
					Reading	s Before Ca	alibration					
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (mg/L)	Salinity (%)	ORP/Eh (mV)	Pres	metric ssure n Hg)	Con	mments
01/03/18	07:20	13	7.07 10.02	10.5 21.5 101 835	1.377	10.7	NA	242.0	76	5.56		None
				633	Poading	as After Ca	libration					
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	' Conductance '			ORP/Eh (mV)	Pres	metric ssure n Hg)	Cor	mments
01/03/18	07:33	14	4.00 7.00 10.00	10 20 100 800	1.413	10.1	NA	240.0 766.58				None
Calibration M	aterials Record	d: Calibration Standa	ırds		Specific Electrical Cond		ity, Dissolved C RP) Calibration		Oxidation		Turbidity Sta	andards
Standard	Cal. Star	ndard Lot#	Expi	ration Date	Standard		idard Lot#	Expiration	Date	Standard	Cal. Standard Lot #	Expiration Date
pH (4)	76	F303	0	6/01/19	Spec. Conductance	7GI	H561	08/01/18	8	10	A6209	01/05/18
pH (7)	7G	G488	0	7/05/19	Salinity	<u> </u>	NA	01/03/1	8	20	A6287	01/05/18
pH (10)	7G	G543	0	7/01/19	D.O.		NA	01/03/1		100	A6286	01/05/18
Water Quality Meter	Meter:	Model, and Seria Manufacture YSI 556 N Hach 210	er/Model	Serial No 13916 30257	ORP 1720 06/05/22 Notes: None					800 Signature	A6287	01/05/18
If No, Provide E	•	. ,	NA							Name (pri	nt):	Samantha Sargent
QA/QC'd by:		Thomas W. Hensel		Thomas	2 S. Sancel				QA	/QC Date:	1,	/5/2018



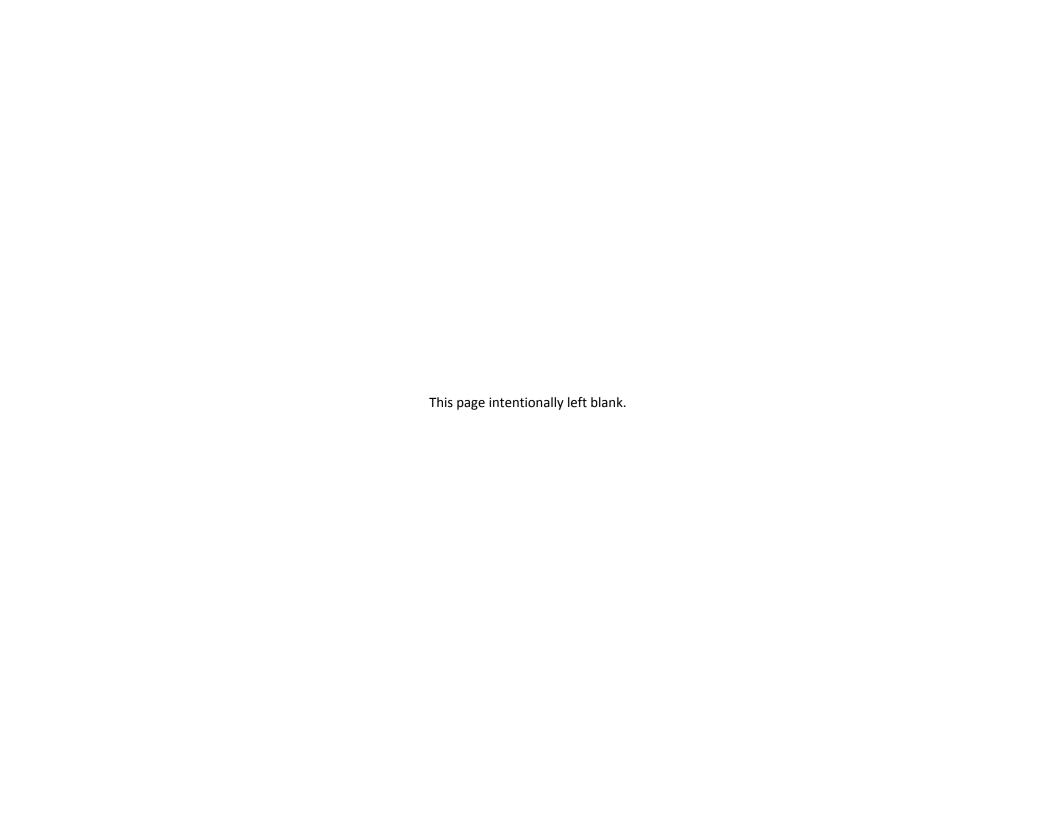
Project Name:		Site Inspection of AFFF Release Areas Environmental Programs Worldwide Project									77530	3101.0009
Contract:		FA	.8903-16-D-0)027	Task Order:	0004		Date:		•	01	1/04/18
Installation:				DAVIS - [Davis-Monthan AFB			Calibrat	ion Start T	ime:	(07:16
Sample Technic	cian(s):		ļ	Kyle Keegan, Br	yan Hansen, Audrey Yorke	9		Calibrat	ion End Ti	me:	(07:25
					Reading	s Before Ca	alibration					
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (mg/L)	Salinity (%)	ORP/Eh (mV)	Pres	metric ssure n Hg)	Cor	mments
01/04/18	07:16	NA	3.98 6.89 9.97	9.49 19.8 98.4 799	1.409	10.05	NA	239.6	764	1.54		None
					Reading	gs After Cal	libration					
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (mg/L)	Salinity (%)	ORP/Eh Barometric Pressure (mV) (mm Hg)		sure	Cor	mments
01/04/18	07:25	NA	4.01 7.02 10.00	10 20 100 800	1.412	9.98	NA	240.0	4.56	None		
Calibration Ma	aterials Record	d: Calibration Standa	ırds		Specific Electrical Cond		ty, Dissolved O		Oxidation		Turbidity Sta	indards
Standard	Cal. Star	ndard Lot#	Expir	ration Date	Standard		dard Lot#	Expiration	Date	Standard	Cal. Standard Lot #	Expiration Date
pH (4)	76	GF303	0	06/01/19	Spec. Conductance	7GH	H561	08/01/1	8	10	A6209	01/05/18
pH (7)	7G	G488	0	07/05/19	Salinity	N	NA .	01/04/1	8	20	A6287	01/05/18
pH (10)	7G	G543	0	07/01/19	D.O.	N	NA .	01/04/1	8	100	A6286	01/05/18
					ORP	HI7	7021	03/05/2	2	800	A6287	01/05/18
Water Quality N	Meter:	Model, and Seria Manufacture YSI 556 I Hach 21 iteria (Y/N):	er/Model	Serial No 13916 30257 Yes	Notes:					Signature	e: /	Myl
If No, Provide Ex	xplanation:		NA							Name (pr	int):	Audrey Yorke
QA/QC'd by:		Thomas W. Hens	sel .	Thoma	a 25. Housel				QA	/QC Date:	1/	/5/2018



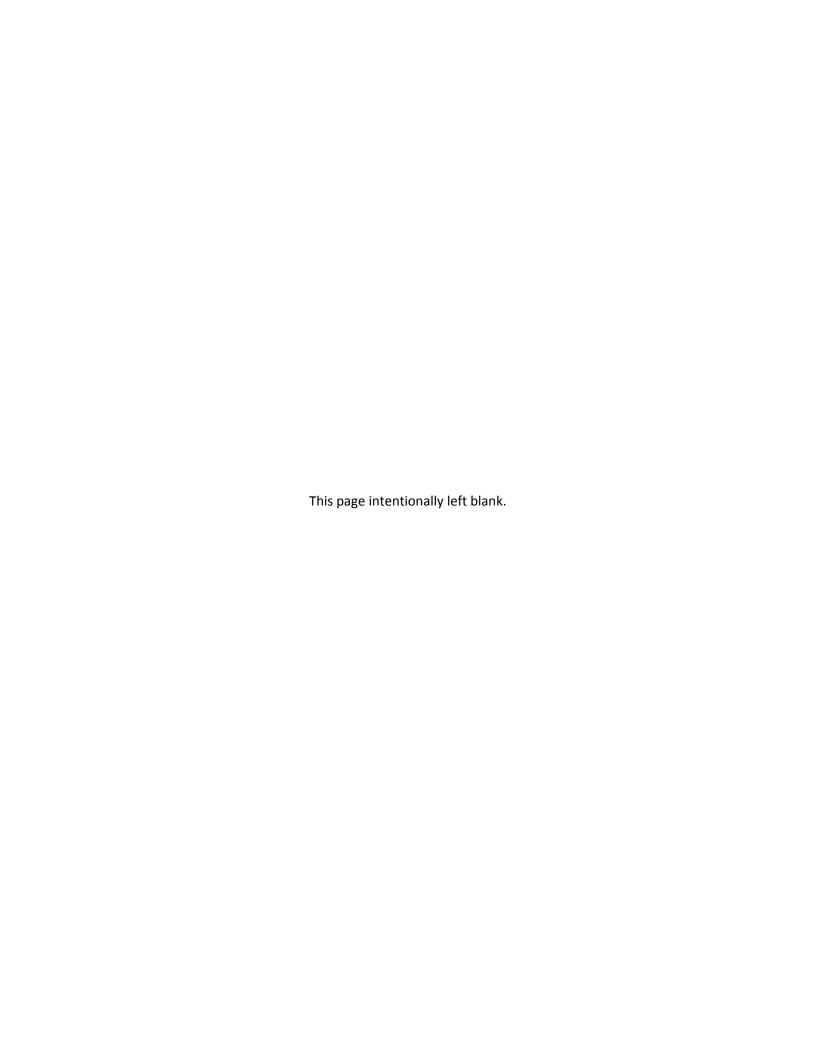
Sample Technician(e): Kyle Keegan, Bryan Hansen, Audrey Yorke Calibration	Name:		Site Ir	nspection o	f AFFF Release	Areas Environmental Pro	grams Worldw	ide	Project	Number:		77530	3101.0009		
Sample Technician(e): Kyle Keegan, Bryan Hansen, Audrey Yorke Calibration	t:		FA8	903-16-D-0	0027	Task Order:	0004		Date:		_	01	/05/18		
Date Time (24hr) Temperature (NSU) Turbidity (NTUs) Specific Electrical Conductance (mS/cn) Comment (mg/L) Comm	on:				DAVIS -	Davis-Monthan AFB			Calibrat	ion Start T	ime:	(7:13		
Date Time (24hr) Temperature (°C) Substitution Temperature (°C) Substitution Temperature (°C) Substitution S	Technician(s):	_			Kyle Keegan, Br	yan Hansen, Audrey York	е		Calibrat	ion End Ti	me:	(07:27		
Date Ilme						Reading	s Before Ca	alibration							
None	to I				-	Conductance				Pres	sure	Сог	nments		
None 1.396				3.98	9.98					•					
Readings After Calibration Readings After	5/18 07:13	B NA	Α	6.89		1.398	NA	NA	239.6	764	1.54		None		
Readings After Calibration Part Temperature Part Turbidity Conductance C				9.97											
Date Time (24hr) Temperature (24hr) Tempera						Readin	gs After Ca	libration							
A 01	te I				-	Specific Electrical Conductance	D.O.	Salinity		Pres	sure	Сон	mments		
Calibration Materials Record:				4.01	10	(χ	9)				
10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 10.01 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800	5/18 07:27	, NA		7.03	20	1 413	11 64	NA	240 1		NA None				
Ph Calibration Standards Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards Turbidity Standards			-			_					Note				
Standard Cal. Standard Lot # Expiration Date Date of Cal. Standard Lot # Date of Cal. Stand	tion Materials Re	ecord:			800										
PH (4) 7GF303 06/01/19 Spec. Conductance 7GH561 08/01/18 10 A6209 PH (7) 7GG488 07/05/19 Salinity NA 01/05/18 20 A6287 PH (10) 7GG543 07/01/19 D.O. NA 01/05/18 100 A6286 ORP HI7021 03/05/22 800 A6287 Instruments (Manufacturer, Model, and Serial No.): Manufacturer/Model Serial No Manufacturer/Model Serial No Curbidity Meter: YSI 556 MPS 13916 Curbidity Meter: Hach 2100Q 30257 Calibrated Within Acceptance Criteria (Y/N): Yes None		pH Calibration	Standard	ds						Oxidation		Turbidity Sta	ndards		
pH (7)	lard <u>Cal.</u>	I. Standard Lot #	<u> </u>	Expir	ation Date	Standard	Cal. Stan	dard Lot #	Expiration	Date	Standard	Cal. Standard Lot #	Expiration Date		
pH (10) 7GG543 07/01/19 D.O. NA 01/05/18 100 A6286 ORP HI7021 03/05/22 800 A6287 Instruments (Manufacturer, Model, and Serial No.): Manufacturer/Model Serial No Vater Quality Meter: YSI 556 MPS 13916 Furbidity Meter: Hach 2100Q 30257 Falibrated Within Acceptance Criteria (Y/N): Yes	(4)	7GF303		0	6/01/19	Spec. Conductance	7GI	H561	08/01/1	8	10	A6209	01/05/18		
ORP HI7021 03/05/22 800 A6287 Notes: Manufacturer, Model, and Serial No.): Manufacturer/Model Serial No Vater Quality Meter: Whach 2100Q 30257 Falibrated Within Acceptance Criteria (Y/N): Yes ORP HI7021 03/05/22 800 A6287 Notes: Signature: None	(7)	7GG488		0	7/05/19	Salinity	N	NA	01/05/1	8	20	A6287	01/05/18		
Instruments (Manufacturer, Model, and Serial No.): Manufacturer/Model Serial No	10)	7GG543		0	7/01/19						100		01/05/18		
Manufacturer/Model Serial No Vater Quality Meter: YSI 556 MPS 13916 Furbidity Meter: Hach 2100Q 30257 Calibrated Within Acceptance Criteria (Y/N): Yes							HI7	7021	03/05/2	2	800	A6287	01/05/18		
Calibrated Within Acceptance Criteria (Y/N): Yes None	`	Manı	ufacturer	/Model		Notes:					Signature		Molo		
				DQ .		4	N	lone				1.2	0		
f No, Provide Explanation: Name (print): Audro	d Within Acceptance	ce Criteria (Y/N):	: 		Yes	_									
	vide Explanation:			NA							Name (pri	nt):	Audrey Yorke		
QA/QC'd by: Thomas W. Hensel Thomas & Young		V 111		1	2 0 11	0					IOC Dete		10/0010		



Project Name:		Site	Inspection o	f AFFF Release	Areas Environmental Pro	grams Worldw	ide	Project	Number:		77530	3101.0009		
Contract:		FA	8903-16-D-0	0027	Task Order:	0004		Date:		_	01	/06/18		
nstallation:				DAVIS -	Davis-Monthan AFB			Calibrat	ion Start 1	Time:	C	7:31		
Sample Techni	cian(s):			Kyle Keegan, Br	yan Hansen, Audrey York	е		- Calibrat	ion End T	ime:	C	7:44		
					Reading	s Before Ca	alibration							
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (mg/L)	Salinity (%)	ORP/Eh (mV)	Pres	metric ssure n Hg)	Cor	nments		
01/06/18	07:31	NA	3.97 6.89	10.3 20.1	1.398	NA	NA	241.3	76	4.54		None		
			9.99	102 808	_									
					Readin	gs After Ca	libration	l l		L				
Date	Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (mg/L)	Salinity (%)	ORP/Eh Pr		metric ssure n Hg)	Cor	nments		
			4.00	10	(,					···g/				
01/06/18	07:44	NA	7.01	20	1.413	11.38	NA	240.0	76	4.54	4 None			
			10.00	100 800	_	1.410								
Calibration Ma	aterials Record	d:			I .			I I						
	рН (Calibration Standa	ırds		Specific Electrical Cond Reduction		ity, Dissolved C		Oxidation		Turbidity Sta	ndards		
Standard	Cal. Star	ndard Lot#	Ехрі	ation Date	Standard		dard Lot#	Expiration	Date	Standard	Cal. Standard Lot #	Expiration Date		
pH (4)	7G	F303	0	6/01/19	Spec. Conductance	7GI	H561	08/01/1	8	10	A6209	01/05/18		
pH (7)	7G	G488	0	7/05/19	Salinity	N	NA	01/06/1	8	20	A6287	01/05/18		
pH (10)	7G	G543	0	7/01/19	D.O.	١	NA	01/06/1	8	100	A6286	01/05/18		
					ORP	HI7	7021	03/05/2	2	800	A6287	01/05/18		
nstruments (I Vater Quality N		Model, and Seria Manufacture YSI 556 I	er/Model	Serial No	Notes:				Signature	- 55	11/			
urbidity Meter		Hach 210		30257	1						/	11/1		
-	n Acceptance Cri			Yes	None							V		
No, Provide E	xplanation:	•	NA							Name (pri	nt):	Audrey Yorke		
A/OCid but	Thomas W. Her	acal .	c 11	a 25 Africa	1					/QC Date:	1/1	0/2018		



APPENDIX B-8 GROUNDWATER SAMPLING COLLECTION LOGS





Wrieelei										
Project Name:				tion of AFFF F ental Program			Project Nu	ımber:		775303101.0009
Contract:				A8903-16-D-0	1027		Task Orde	r.	-	0004
Installation:				B - Davis-Mont			Technicia		-	Samantha Sargent
Well ID:			DAVIC	MW01001	III AI D		Date:	1(5).	-	01/03/18
Initial Depth to	Mator (ft)			351.0			Well Diam	otor (in)	-	4.0
Total Depth of				369.0					٠,١١٠-	11.97
							1 Casing V		· -	
Method of Purg	-	,		Grundfos pur			3 Casing V		_	35.91
Measuring Poir	it (toc, tor, et	c.):		l op c	of Casing	0 10	Pump Inta	ke Depth (teet):	360
Time	Water Level (feet)	Flow Rate (gpm)	Cum. Volume (gal.)	Temp. (°C)	pH (SU)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
		Stabilizatio	n Criteria	±0.5°C	±0.1	±3%	±10%	±10%	±10% and <10	(solot, scalliciti, sast, sto.)
									NTU	
07:33		2.1								Pumping/Purging Started
07:40	352.3	2.1	14.7	25.43	7.72	0.397	5.27	163.3	94.8	Clear
07:45	352.3	2.1	24.9	26.33	7.78	0.398	5.19	195.3	94.3	
07:55	352.3	2.1	45.9	26.82	7.82	0.395	5.08	199.5	29.8	
08:00	352.3	2.1	56.9	26.66	7.82	0.394	5.08	195.3	13.6	
08:05	352.31	2.1	67.0	26.41	7.81	0.393	4.95	189.4	5.00	
08:10	352.31	2.1	77.1	26.41	7.81	0.393	4.88	185.4	2.67	
							+			
							-			
							-			
							-			
Stability Reach	ed (Y/N)·			Yes		If No, Provide E	xnlanation			NA
	· · · · · · · · · · · · · · · · · · ·					1	1	1		
		Final	Values:	26.41	7.81	0.393	4.88	185.4	2.67	
Sample ID:				DAVIS01-GW-	001		Method of	Sampling		Grundfos pump
QA/QC Sample:	s (Yes/No):			No			Sample Da	ate:	-	01/03/18
Duplicate ID:				NA			Sample Co		ime:	08:10
Sample Contaiı	ner Type(s):		2	2 x 125 mL HE	PE		Total Volu		_	77.1
Preservative(s)				Ice (4 °C)			Sample De	_	_	360
Analysis/Metho			PFA	S (EPA 537-n	nodified)				Sampling (ft):	352.21
Instruments (r Model a			iouiliou)		Dopin to v	Tator Filtor	Camping (it).	552.2.
Equipment Calibra		i, Model, a		es		Calibanta d Mithia	Critaria (V/NI).			Yes
Equipment Calibra	tea (Y/N):		I	es		_Calibrated Within	Criteria (Y/N):			res
				Turbidity	Meter, Wate	er Quality Meter, W	ater Level Met	er. Grundfos	Pump	
						2100Q 30257, YSI			•	
										•
Calculations:										Signature:
Saturated well	racina volum	• \/= Π/P^2	2\H*7.48.as	1/ft^2						$O \times X \times X$
V=Volume (gal/ft) = 3.14 R = well radius (ft) H = height of wate	= (well diamete					= N * (6	.0 (in)/12 (in/ft)	?)H*7.48 gal/)/2)^2 * -82.0 121.0 gal.	ft^3 00 * 7.48 gal/ft^3	S-55
Notes:										Name (print):
					None					Samantha Sargent
QA/QC'd by:	Thomas W.	Hensel		Thomas	200	Gensel			QA/QC Date:	1/5/2018



wneeler										
Project Name:				ction of AFFF			Project Nu	umber:		775303101.0009
Contract:	,		-	-A8903-16-D-	0027		Task Orde	ar.	-	0004
Installation:				S - Davis-Mon			Technicia		-	Audrey Yorke, Kyle Keegan, Bryan Hansen
Well ID:	,			MW-42			Date:	(0).	-	01/04/18
Initial Depth to V	Vater (ft):			300.16			Well Diam	eter (in):	=	5.0
Total Depth of W				350.0		-		Volume (ga	I):	51.1
Method of Purgi	ng:			Grundfos pu	mp		3 Casing \	Volumes (g	al):	153.3
Measuring Point	(toc, tor, etc	c.):		Тор	of Casing	_	Pump Inta	ke Depth (feet):	317
Time	Water Level (feet)	Flow Rate (gpm)	Cum. Volume (gal.)	Temp. (°C)	pH (SU)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging
		Stabilizatio	on Criteria	±0.5°C	±0.1	±3%	±10%	±10%	±10% and <10 NTU	(color, sediment, odor, etc.)
10:34		3.8								Pumping/Purging Started
10:39	302.22	3.8	19	26.44	7.97	0.737	4.88	-41.1	49.5	Clear
10:44	302.06	3.8	38	26.07	7.88	0.700	5.02	1.9	27.7	Clear
10:49	302.04	3.8	57	26.03	7.87	0.689	4.90	8.8	22.5	Clear
10:54	302.04	3.8	76 95	26.27	7.87	0.670	4.97	24.5	19.1	Clear
10:59 11:04	302.04 302.04	3.8	95 114	26.97 27.21	7.87 7.86	0.608 0.595	5.08 5.25	31.4 41.1	7.70 3.84	Clear Clear
11:09	302.04	3.8	133	27.21	7.87	0.592	5.25	45.2	3.20	Clear
11:14	302.04	3.8	152	27.32	7.86	0.589	5.19	45.2	2.45	Clear
11.14	302.04	3.0	102	21.32	7.00	0.303	3.10	47.1	2.43	Oleai
							-			
							+			
Stability Reache	d (Y/N):		I	Yes		If No, Provide E	xplanation	ı		NA
-		Final	Values:	27.32	7.86	0.589	5.18	47.1	2.45	
Sample ID:		1 IIIui		DAVIS02-GW		0.000		Sampling:		Grundfos pump
QA/QC Samples	(Voc/No):			No	-002		Sample Da		-	01/04/18
Duplicate ID:	(Tes/No).			NA NA			•	ate. ollection Ti	me:	11:15
Sample Contain	or Type(s):		-	2 x 125 mL HI)PF			ıme Purgeo	_	152
Preservative(s):	er Type(s).			Ice (4 °C)			Sample D	_	. (gai)	317
Analysis/Method	l/e\·		PFΔ	S (EPA 537-r					Sampling (ft):	302.04
Instruments (M		r Model a			nounica)		Deptilito	valei Ailei	Sampling (it).	00E.04
Equipment Calibrate		i, ilioudi, d		es		Calibrated Within	Criteria (Y/N):			Yes
Equipmont oundrate			·				O. KO. G. (1711).			
				Turbidity		er Quality Meter, W 2100Q 30257, YSI			Pump	
Calculations:										Signature:
Saturated well ca	asing volum	e: V= Π(R^2	2)H*7.48 ga	al/ft^3						
							V = (DA	0111477 40 111	***	1 1
V=Volume (gal/ft)						= □ * <i>(</i> 5		2)H*7.48 gal/t	t^3 4 * 7.48 gal/ft^3	WYN
= 3.14 R = well radius (ft) =	(well diamete	r (in)/12 (in/ft))	/2)			11 (0		51.1 gal.	4 7.40 gaint 0	111/
H = height of water		. (111/1 12 (111/11))	-)					J		VV
. 3	(///									
Notes:							_			Name (print):
E	xisting pump d	lepth was unki	nown, team	tags top of pu	mp at approx	timately 316 ft bgs,	sample depth	will be noted	as 317 ft bgs	Audrey Yorke
0.1/0.0:	Th		1.5	-10	at s	1 0			04/005	
QA/QC'd by:	i nomas W. I	Hensel	ć	Thomas	10.4	insel			QA/QC Date:	1/5/2018
					/					



Wileelei										
Project Name:				ction of AFFF I ental Program			Project Nu	ımber:		775303101.0009
Contract:	•		F	A8903-16-D-0	0027		Task Orde	ır.	=	0004
Installation:				S - Davis-Mon			Technicia		-	Audrey Yorke, Kyle Keegan, Bryan Hansen
Well ID:			Dittil	MW03001	andii 7 a D		Date:	11(3).	-	01/04/18
	V-4 (f4)			304.26				-t-= (!m\-	-	4.0
Initial Depth to W							Well Diam	` ,		
Total Depth of W				321.0			1 Casing \		-	11.0
Method of Purgii				Grundfos pur			3 Casing \		-	32.9
Measuring Point	(toc, tor, etc	c.):		Top	of Casing		Pump Inta	ke Depth (feet):	311
			Cum.			Specific				
Time	Water Level (feet)	Flow Rate (gpm)	Volume (gal.)	Temp. (°C)	pH (SU)	Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging
		Stabilizatio	n Criteria	±0.5°C	±0.1	±3%	±10%	±10%	±10% and <10 NTU	(color, sediment, odor, etc.)
07:55		2.8								Pumping/Purging Started
07:56	304.36	2.8	2.8	23.99	7.76	0.450	6.32	175.1	45.2	- P 3 - 3 3 - 4 - 4 - 4
08:01	304.44	2.8	16.8	27.24	7.73	0.444			12.5	
					7.84		6.56	191.1		Class as adam
08:06	304.50	2.8	30.8	27.46		0.442	6.55	204.2	9.23	Clear, no odor
08:11	304.53	2.8	44.8	27.50	7.85	0.440	6.48	215.7	5.73	
08:16	304.55	2.8	58.8	27.53	7.85	0.439	6.65	221.2	6.97	Clear, no odor
							+			
						-	+			
							+			
									1	
Stability Reache	d (Y/N):			Yes		If No, Provide E	explanation			NA
		Final	Values:	27.53	7.85	0.439	6.65	221.2	6.97	
0I- ID		- I IIIui								Country of the control of the contro
Sample ID:				DAVIS03-GW-			Method of		<u>-</u>	Grundfos pump
QA/QC Samples	(Yes/No):			Yes, MS/MS	iD		Sample Da		_	01/04/18
Duplicate ID:				NA			Sample Co	ollection T	ime:	08:20
Sample Containe	er Type(s):			2 x 125 mL H	PE		Total Volu	me Purge	d (gal):	72.8
Preservative(s):				Ice (4 °C)			Sample De	epth (ft):	-	311
Analysis/Method	l(s)·		PFA	S (EPA 537-n	nodified)		-		Sampling (ft):	304.56
Instruments (M		r Model a			,		Doptii to 1	Tatol Filtor	camping (it).	
-		ii, Modei, a		-		O - I'll t I Mi'll - i -	0-1			Vaa
Equipment Calibrate	ed (Y/N):		Y	'es		_Calibrated Within	Criteria (Y/N):			Yes
				Turbidity	Meter Wate	er Quality Meter, W	ater Level Met	er Grundfoe	Pump	
				. a. biaity		2100Q 30257, YSI			. ump	
					. 10011					
Calculations:										Signature:
										3
Saturated well ca	asing volum	e: V= Π(R^2	2)H*7.48 ga	al/ft^3						A .
							V - E/DAG		***	// - \lambda
V= Volume (gal/ft)						- □ * /4		2)H*7.48 gal/		$ \Lambda/YA $
= 3.14						= 11 " (4			'4 * 7.48 gal/ft^3	10/1/
R = well radius (ft) =		r (in)/12 (in/ft))	/2)				=	11.0 gal.		111
H = height of water	column (ft)									
Notes:										Name (print):
					None					Audrey Yorke
										,
					, ,	1 1				
QA/QC'd by:	Thomas W	Hensel		Thomas	26.	the second			QA/QC Date:	1/5/2018
				comomou	Lila both				Date.	



wneeler										
Project Name:				tion of AFFF I			Project Nu	ımber:		775303101.0009
Contract:	•		F	A8903-16-D-0	0027		Task Orde	r:	=	0004
Installation:	•			- Davis-Mon			Technicia		-	Audrey Yorke, Kyle Keegan, Bryan Hansen
Well ID:	•			MW-43			Date:	` ,	=	01/05/18
Initial Depth to	Water (ft):			293.91		,	Well Diam	eter (in):	_	5.0
Total Depth of \	Well (ft):			368.0			1 Casing \	/olume (ga	l):	75.6
Method of Purg	ing:			Grundfos pur	mp		3 Casing \	/olumes (g	al):	226.7
Measuring Poir	nt (toc, tor, et	c.):		Top	of Casing		Pump Inta	ke Depth (feet):	Unknown
Time	Water Level (feet)	Flow Rate (GPM)	Cum. Volume (gal.)	Temp. (°C)	pH (SU)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging
		Stabilization	on Criteria	±0.5°C	±0.1	±3%	±10%	±10%	±10% and <10 NTU	(color, sediment, odor, etc.)
14:48		4.3							-	Pumping/Purging Started
14:53	309.01	4.3	21.5	26.08	9.40	0.206	2.24	-63.3	90.3	Clear
14:58	312.31	4.3	43	26.72	8.83	0.387	4.42	68.3	122	Clear
15:03	313.62	4.3	64.5	27.32	8.11	0.420	4.64	-24.0	21.1	Clear
15:08	313.62	4.3	86	27.93	7.84	0.426	4.58	11.6	2.75	Clear
15:13	313.62	4.3	107.5	27.38	7.78	0.425	4.56	23.5	1.44	Clear
15:18	313.62	4.3	129	27.17	7.75	0.425	4.45	38.1	0.87	Clear
15:23	313.62	4.3	150.5	28.52	7.30	0.428	5.72	44.8	0.95	Clear
15:28	313.62	4.3	172	28.58	7.25	0.427	5.63	46.5	1.14	Clear
15:33	313.62	4.3	193.5	28.55	7.15	0.428	5.42	46.9	1.09	Clear
Stability Reach	od (V/N).			Yes	I	If No, Provide E	volunation		J	NA
Stability Reach	eu (1/N).		1	163	1	1	-xpiariation			IVA
		Final	Values:	28.55	7.15	0.428	5.42	46.9	1.09	
Sample ID:				AVIS02-GW-	-003			Sampling:	: <u>-</u>	Grundfos pump
QA/QC Sample:	s (Yes/No):			No			Sample Da		_	01/05/18
Duplicate ID:				NA			-	ollection Ti	-	15:35
Sample Contain			2	x 125 mL HE	DPE			me Purgeo	l (gal):	224
Preservative(s)			DEA	Ice (4 °C)	1)		Sample De	,	- " " -	Unknown
Analysis/Metho Instruments (I		v Madal (S (EPA 537-n	nodified)		Depth to V	vater After	Sampling (ft):	313.62
Equipment Calibra		er, Moder, a		es		_Calibrated Within	Criteria (Y/N):	:		Yes
				Turbidity		er Quality Meter, W 2100Q 30257, YS			Pump	
Calculations:										Signature:
Saturated well	casing volum	ne: V= Π(R^	2)H*7.48 g	al/ft^3						
V=Volume (gal/ft) = 3.14 R = well radius (ft) H = height of wate		er (in)/12 (in/ft))/2)			= ∏ * (5	5.0 (in)/12 (in/ft)	?)H*7.48 gal/t))/2)^2 * 56.0 57.5 gal.	ft^3 9 * 7.48 gal/ft^3	W/m
Notes:										Name (print):
				Pump	intake depth	unknown				Audrey Yorke
QA/QC'd by:	Thomas W.	Hensel	E In	temas a	J. Hens	el			QA/QC Date:	1/10/2018



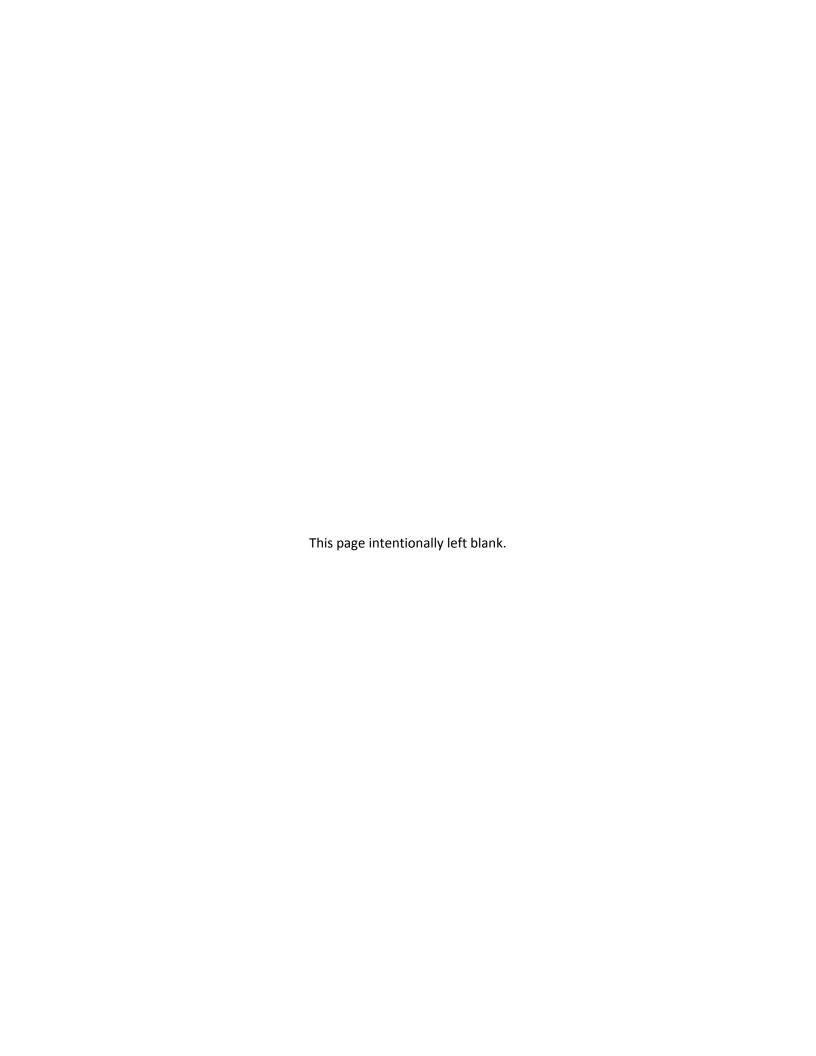
wheeler												
Project Name:				tion of AFFF I ental Program			Project Nu	ımber:		775303101.0009		
Contract:			F	A8903-16-D-0	0027		Task Orde	r:	_	0004		
Installation:			DAVIS	6 - Davis-Mon	than AFB		Technicia	n(s):	_	Audrey Yorke, Bryan Hansen		
Well ID:				MW-40			Date:			01/05/18		
Initial Depth to				338.9			Well Diam		_	5.0		
Total Depth of \				368.0		<u> </u>	1 Casing \		· —	29.7		
Method of Purg	_			Grundfos pur	np of Casing		3 Casing \			89.0 Unknown		
Measuring Poin	it (toc, tor, et	.c.).		ТОР	or Casing	Specific	Pump Inta	ke Deptii (ieet).	OTIKTOWIT		
Time	Water Level (feet)	Flow Rate (GPM)	Cum. Volume (gal.)	Temp. (°C)	pH (SU)	Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)		
		Stabilization	on Criteria	±0.5°C	±0.1	±3%	±10%	±10%	±10% and <10 NTU	(,		
10:51		2.9								Pumping/Purging Started		
10:56	340.28	2.9	14.5	25.26	9.69	0.155	0.50	-188.5	35.6	Clear		
11:01	340.19	2.9	29 43.5	25.28 27.02	9.82 8.12	0.164 0.381	0.29 4.98	-262.0 -164.2	65.2 14.6	Clear Clear		
11:06 11:11	340.19 340.19	2.9	58	27.02	8.12	0.384	5.10	-104.2	10.1	Clear		
11:16	340.19	2.9	72.5	27.89	7.88	0.384	5.32	-85.1	16.7	Clear		
11:21	340.19	2.9	87	28.08	7.85	0.384	5.56	-67.0	6.34	Clear		
11:26	340.19	2.9	101.5	28.10	7.83	0.383	5.47	-65.2	3.24	Clear		
11:31	340.19	2.9	116	28.17	7.82	0.382	5.46	-68.2	2.51	Clear		
Stability Reach	ed (Y/N):			Yes		If No, Provide E	explanation			NA		
		Final	Values:	28.17	7.82	0.382	5.46	-68.2	2.51			
Sample ID:				DAVIS02-GW-	004		Method of		<u> </u>	Grundfos pump		
QA/QC Samples	s (Yes/No):			No			Sample Da		_	01/05/18		
Duplicate ID: Sample Contair	or Typo(s):			NA 2 x 125 mL HI)PE		Sample Co Total Volu			11:35 128		
Preservative(s)				Ice (4 °C)	71 L		Sample De	_		Unknown		
Analysis/Metho			PFA	S (EPA 537-n	nodified)		-		Sampling (ft):	340.19		
Instruments (I		er, Model, a	and Seria	l No.):					, , ,			
Equipment Calibra	ted (Y/N):		Y	es		_Calibrated Within	Criteria (Y/N):	:		Yes		
				Turbidity		er Quality Meter, W 2100Q 30257, YS			Pump			
Calculations:										Signature:		
Saturated well	casing volum	ne: V= Π(R^	2)H*7.48 g	al/ft^3						<i>X</i>		
V=Volume (gal/ft) = 3.14 R = well radius (ft) H = height of water		er (in)/12 (in/ft)))/2)			= ∏ * (5	5.0 (in)/12 (in/ft)	2)H*7.48 gal/t))/2)^2 * 11.1 11.4 gal.	ft^3 0 * 7.48 gal/ft^3	ly		
Notes:										Name (print):		
				Pump depth	unknown. R	eplaced MW-28.				Audrey Yorke		
QA/QC'd by:	Thomas W.	Hensel	c	Thomas	25.4	insel			QA/QC Date:	1/10/2018		



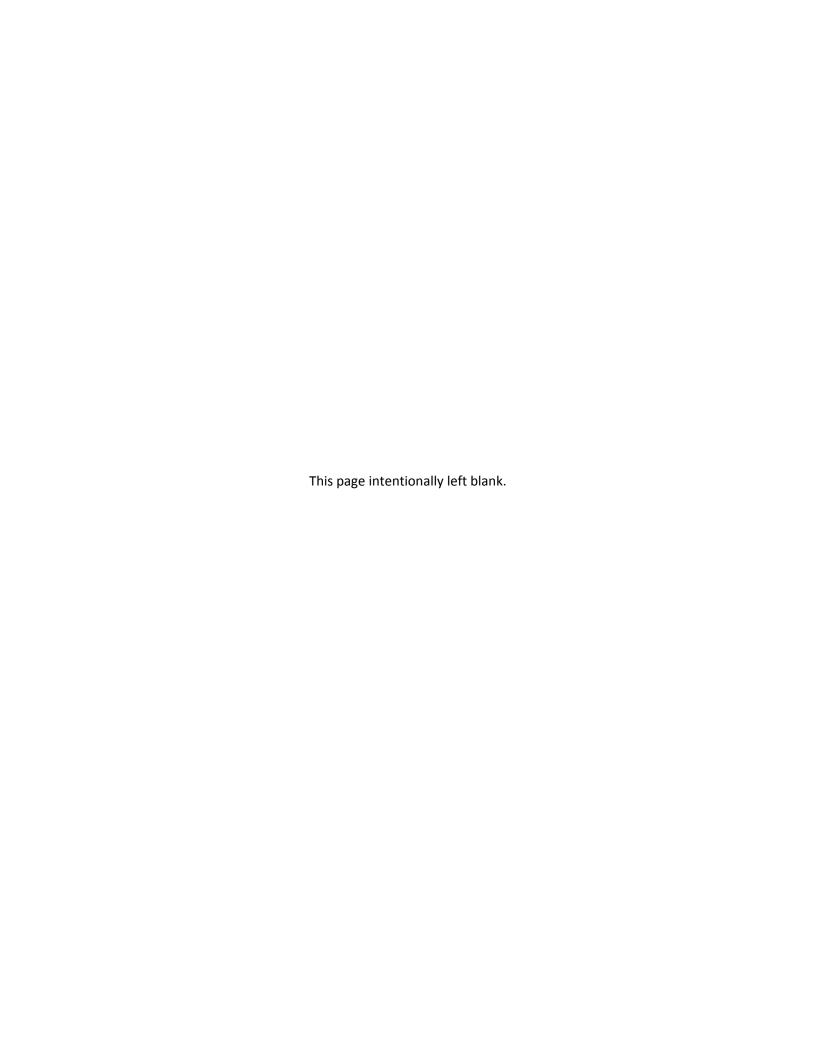
wneeler												
Project Name:				tion of AFFF fental Program			Project Nu	ımber:		775303101.0009		
Contract:	•		F	A8903-16-D-0	0027		Task Orde	r:	_	0004		
Installation:	,			6 - Davis-Mon			Technicia		-	Audrey Yorke, Bryan Hansen		
Well ID:	•			MW-44		,	Date:		_	01/05/18		
Initial Depth to	Water (ft):			328.42			Well Diam	eter (in):	_	5.0		
Total Depth of \				380.0			_	/olume (ga	· —	52.6		
Method of Purg				Grundfos pur			_	/olumes (g		157.8		
Measuring Poir	it (toc, tor, et	c.):		I op d	of Casing	Chasitia	Pump Inta	ke Depth (reet):	Unknown		
Time	Water Level (feet)	Flow Rate (GPM)	Cum. Volume (gal.)	Temp. (°C)	pH (SU)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)		
		Stabilizatio	on Criteria	±0.5°C	±0.1	±3%	±10%	±10%	±10% and <10 NTU			
12:22		2.3								Pumping/Purging Started		
12:27	334.30	2.3	11.5	26.35	10.00	0.208	0.17	-243.2	99.1	Cloudy		
12:32 12:37	336.17 335.97	2.3 1.2	23.0 29.0	28.12	8.22 8.03	0.416 0.435	0.93 1.23	-116.3 -96.3	20.6 12.5	Clear Clear		
12:42	335.60	1.2	35.0	28.81	7.90	0.432	1.29	-90.3 -71.1	8.33	Clear		
12:47	335.43	1.2	41.0	28.89	7.87	0.430	1.32	-60.2	5.21	Clear		
12:52	335.34	1.2	47.0	29.27	7.85	0.425	1.64	-51.3	3.77	Clear		
12:57	335.24	1.2	53.0	29.40	7.84	0.419	2.24	-36.6	3.00	Clear		
13:02	335.22	1.2	59.0	29.82	7.83	0.418	3.27	-19.6	2.41	Clear		
13:07	335.22	1.2	65.0	29.88	7.83	0.413	3.26	-14.2	1.93	Clear		
13:12	335.19	1.2	71.0	30.05	7.82	0.411	3.44	-4.3	1.87	Clear		
13:17 13:22	335.19 335.19	1.2	77.0 83.0	30.16 30.19	7.82 7.81	0.411 0.411	3.51 3.75	-4.0 -3.8	1.29 1.55	Clear Clear		
13.22	333.19	1.2	03.0	30.19	7.01	0.411	3.75	-3.0	1.55	Clear		
						<u> </u>						
Stability Reach	ed (Y/N):			Yes		If No, Provide E	Explanation			NA		
		Final	Values:	30.19	7.81	0.411	3.75	-3.8	1.55			
Sample ID:				AVIS02-GW-	006	ı	Method of	Sampling:		Grundfos pump		
QA/QC Sample:	s (Yes/No):			No			Sample Da		_	01/05/18		
Duplicate ID:				NA			Sample Co	ollection Ti	me:	13:25		
Sample Contair	ner Type(s):		2	2 x 125 mL HE	PE		Total Volu	me Purged	l (gal):	85.4		
Preservative(s)	:			Ice (4 °C)			Sample De		_	Unknown		
Analysis/Metho				S (EPA 537-n	nodified)		Depth to V	Vater After	Sampling (ft):	335.19		
Instruments (I Equipment Calibra		er, Model, a		l No.): es		Calibrated Within	Criteria (Y/N):	:		Yes		
				Turbidity		er Quality Meter, W 2100Q 30257, YS			Pump			
Calculations:										Signature:		
Saturated well	casing volum	ne: V= Π(R^	2)H*7.48 g	al/ft^3								
V=Volume (gal/ft)						_		2)H*7.48 gal/f		1/1/2n		
= 3.14 R = well radius (ft) H = height of water		er (in)/12 (in/ft))/2)			=11^(5))/2)^2 ^ 21.5 22.1 gal.	8 * 7.48 gal/ft^3	100		
Notes:										Name (print):		
			Total depti	n and pump in	take depth u	nknown. Replace	d MW-35.			Audrey Yorke		
QA/QC'd by:	Thomas W.	Hensel	The	mas 21	Henre	l			QA/QC Date:	1/10/2018		



wheeler											
Project Name:				ction of AFFF F nental Program			Project Nu	ımber:		775303101.0009 0004	
Contract:			F	-A8903-16-D-0	0027		Task Orde	er:	-		
Installation:			DAVIS	S - Davis-Mon	than AFB		Techniciar	n(s):	Audrey Yorke, Kyle Keegan, Bryan Hansen		
Well ID:				MW02001			Date:		_	01/05/18	
Initial Depth to				282.54			Well Diam	٠,	_ =	4.0	
Total Depth of				305.0			1 Casing V		-	14.7	
Method of Purg	_	- \-		Grundfos pur			3 Casing V		-	44.2	
Measuring Poir	nt (toc, tor, et	c.):		Тор с	of Casing	Specific	Pump Inta	ke Deptn (reet):	300	
Time	Water Level (feet)	Flow Rate (GPM)	Cum. Volume (gal.)	Temp. (°C)	pH (SU)	Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)	
		Stabilizatio	n Criteria	±0.5°C	±0.1	±3%	±10%	±10%	±10% and <10 NTU		
08:00		2.8								Pumping/Purging Started	
08:05	282.93	2.8	14.0	25.19	7.65	0.462	6.37	175.0	4.38	Clear, no odor	
08:10	282.93	2.8	28.0	25.33	7.66	0.462	6.37	174.0	2.39	Clear, no odor	
08:15 08:20	282.93 282.93	2.8	42.0 56.0	25.35 25.33	7.66 7.66	0.461 0.460	6.28 6.23	170.5 164.8	1.47 0.66	Clear, no odor Clear, no odor	
08:25	282.93	2.8	70.0	25.29	7.65	0.460	6.27	161.6	0.92	Clear, no odor	
08:30	282.93	2.8	84.0	25.30	7.65	0.459	6.40	158.2	0.79	Clear, no odor	
00.00	202.00	2.0	00	20.00	7.00	0.100	0.10	100.2	0.70	olodi, no odol	
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						†		1			
Stability Reach	ed (Y/N):			Yes		If No, Provide E	Explanation			NA	
	(1711).				- 05		·				
		Final	Values:	25.30	7.65	0.459	6.40	158.2	0.79		
Sample ID:	04 (01)			MW02001			Method of		: _	Grundfos pump	
QA/QC Sample:	s (Yes/No):			es, DUP, MS/I			Sample Da		- -	01/05/18	
Duplicate ID: Sample Contail	nor Tymo(a).			2 x 125 mL HE			Sample Co		_	08:35 103.60	
Preservative(s)				lce (4 °C)			Total Volu Sample De	_	ı (gai)	300	
Analysis/Metho			PFA	AS (EPA 537-m					Sampling (ft):	282.93	
Instruments (er. Model. a			- iouou)		Deptil to V	vater Arter	Camping (it).	202.00	
Equipment Calibra				/es		Calibrated Within	n Criteria (Y/N):	:		Yes	
				Turbidity		er Quality Meter, Wa n 2100Q 30257, YSI			3 Pump		
Calculations:										Signature:	
Saturated well	casing volum	ne: V= Π(R^	'2)H*7.48 g	al/ft^3						A.	
V=Volume (gal/ft) = 3.14 R = well radius (ft) H = height of wate		er (in)/12 (in/ft)	1)/2)			= □ * (4	4.0 (in)/12 (in/ft)	2)H*7.48 gal/ :))/2)^2 * 22.4 14.7 gal.	/ft^3 46 * 7.48 gal/ft^3	la)	
Notes:										Name (print):	
					None					Audrey Yorke	
QA/QC'd by:	Thomas W.	Hensel	- th	omas 21	Hense	l			QA/QC Date:	1/10/2018	



APPENDIX B-9 SEDIMENT – SURFACE WATER SAMPLING COLLECTION LOGS





wheeler										
Project Name:		spection of AFFF onmental Progra			Project Nu	mber:		775303101.0009		
Contract:		FA8903-16-E)-0027		Task Orde	r:	_	0004		
nstallation:	D	AVIS - Davis-Mo			Date:		10/26/17			
Location ID:		SD0100			Northing/E	asting:	_	Not Collected		
Technician(s):					Noel G	_	_			
. ,				SEDIMENT	T SAMPLE					
				Descr						
	NAME	(USCS Symbol)	color, moist	ure, % by wt, plas		y, toughnes	ss, dry strength	,consistency		
Well gra	aded Sand-SW- 10Y	R 5/2 grayish l	orown, dry,	80% Sand 10%	fines and 5	% gravel,	medium grair	ned, non plastic, soft consistency		
Sample Depth (ft):		0 - 0.5			Sample ID	:		DAVIS01-SD-001		
MS/MSD Collected:		No			Sample Da	ate:	_	10/26/17		
Duplicate ID:		NA			Sample Co		-	16:30		
Sample Container 1	Гуре(s):		HDPE		Sample Co	ollection N	/lethods:	Grab		
Preservative(s):		Ice (4 °C	C)		Analysis/N	lethod(s):	PFAS (EPA 537-modified) + FTS List			
				SURFACE S	OIL SAMPI	_E				
				Descr	iption					
	NAME	(USCS Symbol)	color, moist	ure, % by wt, plas	sticity, dilatano	y, toughnes	ss, dry strength	,consistency		
				N						
Sample Depth (ft):		NA NA			Sample ID		_	NA NA		
MS/MSD Collected: Duplicate ID:	·	NA NA			Sample Da					
	F		NA		Sample Co		_	NA NA		
Sample Container 1	ype(s):	NA	INA		Sample Co		_	NA NA		
Preservative(s):		INA		LIDEACE WA	Analysis/N			NA NA		
			٠ - ١	URFACE WA	TER SAMI	LE	T T			
Time	Intake Depth (in)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, etc.)		
NA	NA	NA	NA	NA	NA	NA	NA	NA		
Sample Depth (ft):		NA			Sample Da	ate:		NA		
Sample ID:		NA			Sample Co	ollection T	ime:	NA		
MS/MSD Collected:		NA			Sample Co	ollection N	/lethods:	NA		
Duplicate ID:		NA			Surface W	ater Dept	h (ft):	NA		
Sample Container 1	Type(s):		NA		Water Bod	y and Wa	ter Quality C	haracteristics:		
Preservative(s):		NA						NA		
Analysis/Method(s)):	NA						TVA		
Location Image:					Instrume	nts (Man	ufacturer, N	lodel, and Serial No.):		
The Value	The second second		-		Equipment C			NA		
Contract of the Contract of th					Calibrated W	/ithin Criteri	a (Y/N):	NA		
		a de la companya de l	Marie Land				_			
	The second second	The last of the la								
46.00	and Million Street	The same of	The same of			Other(s	s): Sample colle	ected by hand wearing nitrile gloves.		
	Total Company	2 / 2				(-	, ,	,		
			The second							
		40.00								
600年	No. of the	A 40 10	国际 (1)							
					Notes:			Signature:		
			E. ALE							
							None	Name (print):		
Caption:	AFF	Release Area						Noel Garland		
QA/QC'd by:	Thomas W. Hense			Henrel	7	04	/QC Date:	2/23/2018		
anao a by.		who	man W.	regeneral		w.r.	ao Date.	-,,, 10		



wileelei										
Project Name:		pection of AFFF onmental Progra			Project Nu	mber:		77530	775303101.0009	
Contract:		FA8903-16-D	-0027		Task Orde	r:			0004	
Installation:	DA	AVIS - Davis-Mo	nthan AFB		Date:		•	10/26/17		
Location ID:		SD0300	1	_	Northing/E	asting:	•	Not (Collected	
Technician(s):					Noel G	arland	•			
				SEDIMENT	SAMPLE					
				Descri	iption					
	NAME (USCS Symbol):	color, moist	ure, % by wt, plas	•	y, toughnes	s, dry strengt	th,consistency		
	d Sand with gravel	- SW- 10YR 5	/2 Grayish	Brown, dry, 709			el, coarse gr	rained, non plastic, so	ft consistency 03-SD-001	
Sample Depth (ft): MS/MSD Collected:		No			Sample ID		•		03-3D-001	
Duplicate ID:		DAVIS-FD-SI	0.001	-	Sample Da		imo:		15:00	
Sample Container Ty	ne(e):		HDPE		Sample Co				Grab	
Preservative(s):	pe(s).	Ice (4 °C			Analysis/N				-modified) + FTS List	
rieseivalive(s).		100 (4 0		SIIDEACE SO		-modified) + 1 13 List				
				SURFACE SO		<u>.</u> E				
	NIANAT A	(11000 C. mahal).		Descri ure, % by wt, plas	•			th consistency		
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		N.		,,g	,,	.,		
Sample Depth (ft):		NA			Sample ID	:		NA		
MS/MSD Collected:		NA			Sample Da	ıte:	•	NA		
Duplicate ID:		NA			Sample Co	llection T	ime:		NA	
Sample Container Ty	pe(s):		NA		Sample Co	llection N	lethods:		NA	
Preservative(s):		NA			Analysis/N	lethod(s):			NA	
			S	URFACE WA	TER SAMI	PLE				
Time	Intake Depth (in)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Durin	s/Observations g Purging ediment, etc.)	
NA	NA	NA	NA	NA	NA	NA	NA		NA	
Sample Depth (ft):		NA			Sample Da	ite:			NA	
Sample ID:		NA			Sample Co	llection T	ime:		NA	
MS/MSD Collected:		NA			Sample Co	ollection N	lethods:		NA	
Duplicate ID:		NA			Surface W	ater Depti	ո (ft)։		NA	
Sample Container Ty	pe(s):		NA		Water Bod	y and Wa	ter Quality	Characteristics:		
Preservative(s):		NA						NA		
Analysis/Method(s):		NA						INA		
Location Image:				_	Instrume	nts (Manı	ufacturer,	Model, and Serial I	No.):	
- 50	All and a second				Equipment C	Calibrated (Y	′/N):		NA	
0.50					Calibrated W	ithin Criteria	a (Y/N):		NA	
							•			
	1					her(s): No ir	nstruments us	sed. Collected by hand w		
	Archive.				Notes:				Signature:	
	*	- 13 - 14 - 14 - 14					None		Name (print):	
Cantian	No. of the	d!	ufall						Noel Garland	
Caption:	North Ra	amp drainage ou	ιπαιι		<u> </u>					
QA/QC'd by:	Thomas W. Hensel	Thomas	205	Henrel		QA	QC Date:	2/2	3/2018	



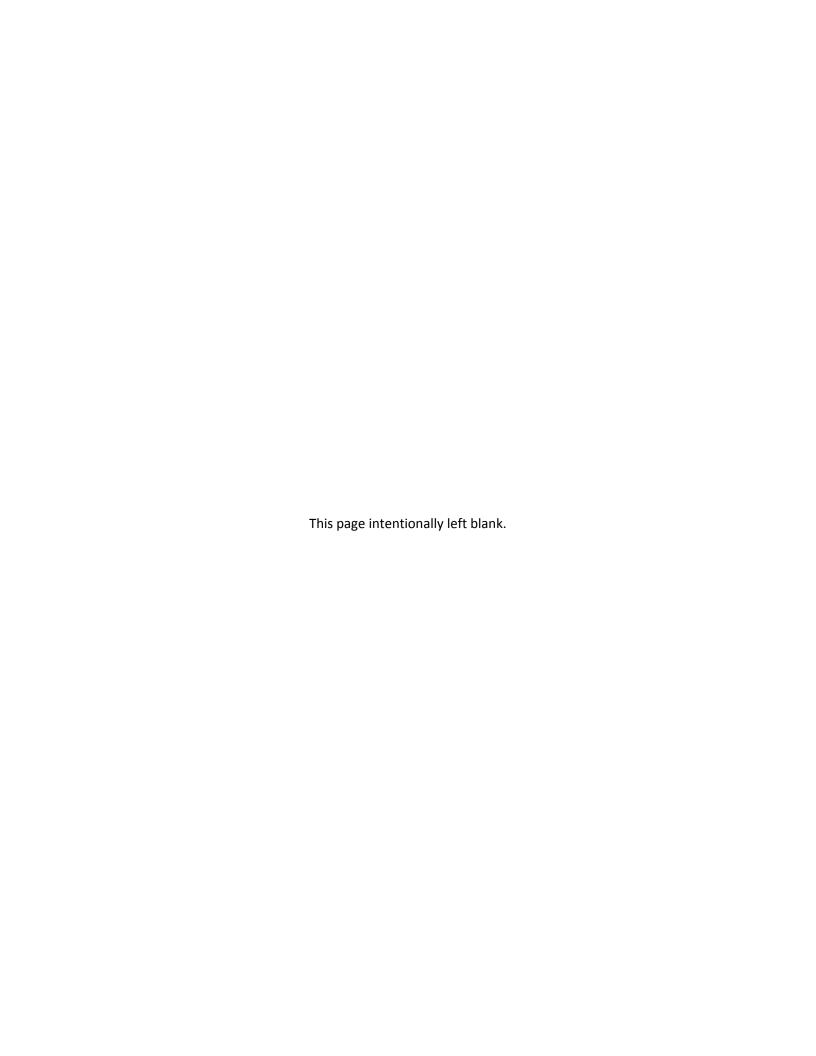
wneeler										
Project Name:		spection of AFFF onmental Progra			Project Nu	mber:		775303101.0009		
Contract:		FA8903-16-E	0-0027		Task Orde	r:	_	0004		
nstallation:	D	AVIS - Davis-Mo			Date:		_	10/26/17		
Location ID:	-	SD0300			Northing/E	asting:	_	Not Collected		
Гесhnician(s):					Noel G	-	_			
.,				SEDIMEN	T SAMPLE					
				Descr						
	NAME	(USCS Symbol)	: color, moist	ture, % by wt, plas	•	y, toughnes	ss, dry strength	,consistency		
Well grand of the control of the con	ype(s):	0 - 0.5 Yes NA 4 oz Ice (4 °(z. HDPE	SURFACE So Descr ture, % by wt, plas	Sample ID Sample Da Sample Co Sample Co Analysis/N OIL SAMPl iption sticity, dilatano	: ate: Ollection I Ollection M Hethod(s): E	ime:	DAVIS03-SD-002 10/26/17 15:30 Grab PFAS (EPA 537-Modified) + FTS List ,consistency		
					-		_	NA NA		
MS/MSD Collected:		NA NA			Sample Da			NA NA		
Duplicate ID: Sample Container T	vne(s):	INA	NA	·	Sample Co		-	NA NA		
Preservative(s):	ype(s).	NA	INA		Analysis/N		_	NA NA		
reservative(s).		INA		SURFACE WA				INA		
				Specific	TER OAIII		т т			
Time	Intake Depth (in)	Temp. (°C)	pH (units)	Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, etc.)		
NA	NA	NA	NA	NA	NA	NA	NA	NA		
Sample Depth (ft):		NA			Sample Da	ite:		NA		
Sample ID:		NA			Sample Co		-	NA		
MS/MSD Collected:		NA			Sample Co			NA		
Ouplicate ID:		NA			Surface W	-	· · · —	NA		
Sample Container T	ype(s):		NA		Water Boo	y and Wa	ter Quality C	haracteristics:		
Preservative(s):		NA NA						NA		
Analysis/Method(s):		NA			1.					
Location Image:						•	•	lodel, and Serial No.):		
	A.F		1				//N):			
			200	'	Calibrated V	/ithin Criteri	a (Y/N):	NA		
723			100 1876							
						Other(s	s): Sample colle	ected by hand wearing nitrile gloves ,		
	一种	MACL X			Notes:			Signature:		
							None	Name (print):		
Caption:	Former Fire st	ation No. 1 Drair	nage outfall					Noel Garland		
Caption.				* * * V	2			I		
QA/QC'd by:	Thomas W. Hense	-11	mad 21	Thensel	*	QA	/QC Date:	2/23/2018		



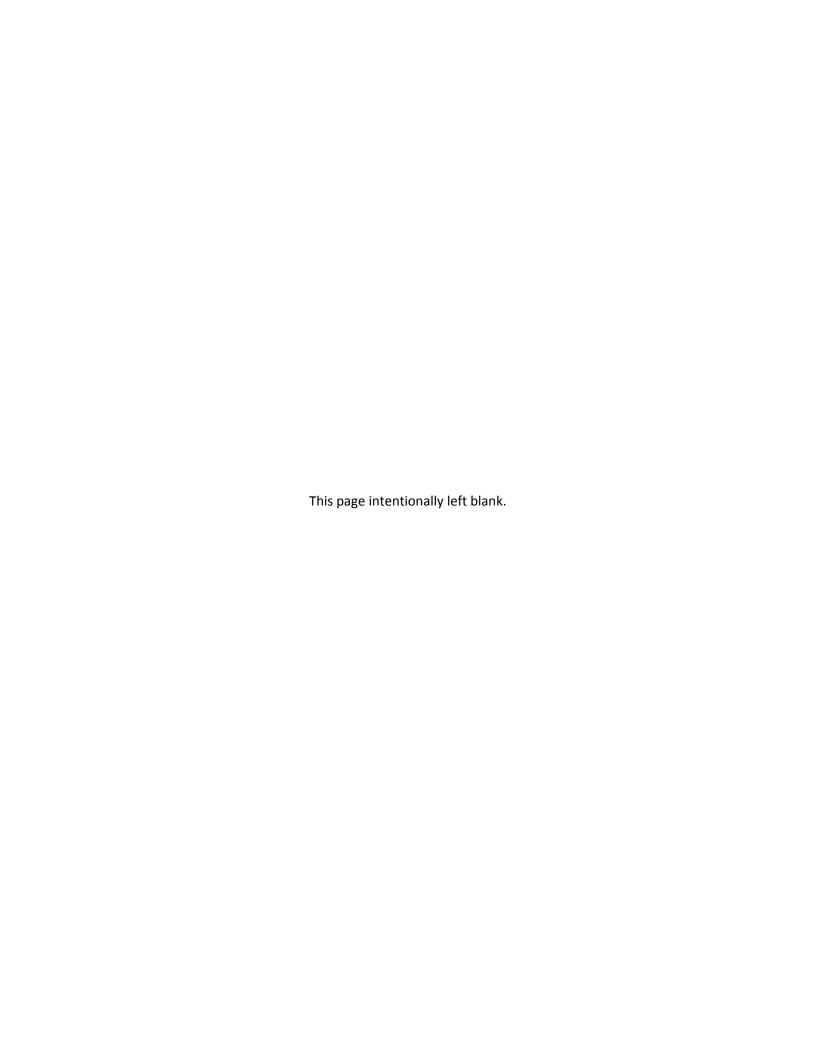
wheeler											
Project Name:		pection of AFFF onmental Progra			Project Nu	ımber:		775303101.0009			
Contract:		FA8903-16-E	0-0027		Task Orde	r:		0004			
Installation:	D/	AVIS - Davis-Mo			Date:			10/27/17			
Location ID:		SD0300			Northing/	asting:		Not Collected			
Technician(s):				_	Noel G	_					
(0).				SEDIMEN [*]							
				Descr							
	NAME	(LISCS Symbol)	· color moiet	ture, % by wt, pla	•	ev toughnes	e dry etrona	th consistancy			
	IVAIVIL	OSCS Symbol)	. color, moisi	ture, 70 by Wt, pla	sticity, ullatari	y, tougrines	ss, dry streng	in,consistency			
Well grade	ed sand with gravel	-SW-10YR 6/3	3 pale brow	n, dry, 75% sar	nd and 25%	gravel, coa	arse grained	sand, non plastic, soft consistency			
Sample Depth (ft):		0 - 0.5			Sample ID	•		DAVIS03-SD-003			
MS/MSD Collected:	-	No			Sample Da			10/27/17			
Duplicate ID:	-	NA NA			Sample Co		imo:	07:45			
Sample Container Ty	vne(e):		z HDPE		Sample Co			Grab			
Preservative(s):	ypc(3).	lce (4 °0			•			PFAS (EPA 537-modified) + FTS List			
rieseivalive(s).		100 (4))	CUDEACE C	Analysis/Method(s): PFAS (EPA 537-modified) + FTS List E SOIL SAMPLE						
						LE					
	NAME ((USCS Symbol)	: color, moist	Descr ture, % by wt, pla	•	cy, toughnes	ss, dry streng	th,consistency			
				N	A						
Sample Depth (ft):		NA			Sample ID	•		NA			
MS/MSD Collected:		NA			Sample Da			NA NA			
Duplicate ID:	-	NA NA			Sample Co		ime.	NA NA			
Sample Container Ty	vne(s).		NA		Sample Co			NA NA			
Preservative(s):	ypc(3).	NA			Analysis/N			NA NA			
rieseivalive(s).		19/3	-	SURFACE WA				IVA			
	1		- 3		TER SAIVI	PLE	1				
Time	Intake Depth (in)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, etc.)			
NA	NA	NA	NA	NA	NA	NA	NA	NA			
Sample Depth (ft):	· ·	NA	I		Sample Da	ate:		NA			
Sample ID:	-	NA			Sample Co		ime:	NA NA			
MS/MSD Collected:		NA			Sample Co			NA NA			
Duplicate ID:	-	NA			Surface W			NA NA			
Sample Container Ty	vne(s).		NA					Characteristics:			
Preservative(s):	y <u>pc(3).</u>	NA			Water Bot	iy ana wa	tor equality	Onaracteristics.			
Analysis/Method(s):		NA						NA			
		107			Inotrumo	nto /Moni	ifooturor	Model, and Serial No.):			
Location Image:			NA PERSONAL PROPERTY AND ADDRESS OF THE PERSONAL			•		•			
	The state of the s				Equipment (NA			
					Calibrated V	Vithin Criteri	a (Y/N):	NA NA			
						Othe	er(s): Collecte	ed by hand wearing nitrile gloves.m			
								,			
- N. P.	W h	-									
100	COTTON A LITTLE OF	-									
19.00	A LOND OF	11-5-50	-		N			To:			
		66			Notes:			Signature:			
			100-					W. Carlotte and Ca			
							None	hs pl			
		A CONTRACTOR OF THE PROPERTY O						Name (print):			
	- W							taile (pilit).			
Caption:	Storm	water outfall ca	nal	•				Noel Garland			
оарион.	Stoffii			- 10	<u> </u>			ı			
QA/QC'd by:	Thomas W. Hensel	Thomas	w 25.	Gensel		QA	/QC Date:	2/23/2018			



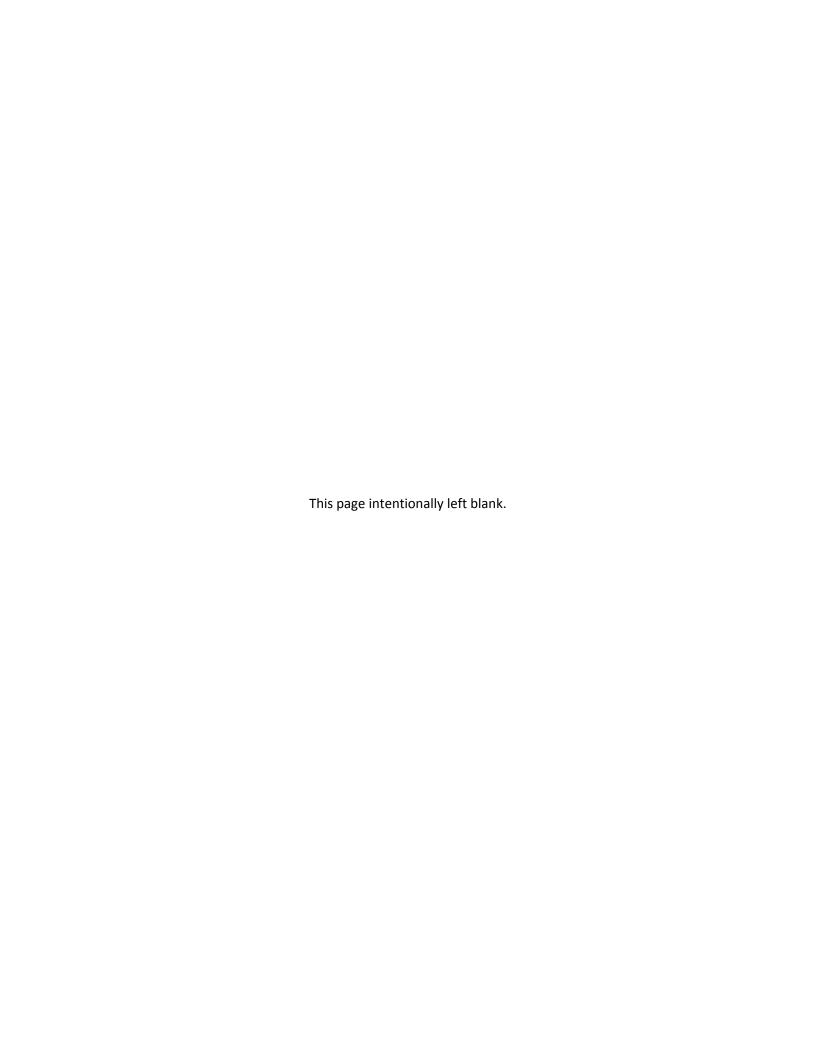
WITEGIET											
Project Name:		spection of AFF onmental Progra			Project Nu	mber:		7753	775303101.0009		
Contract:		FA8903-16-I	0-0027		Task Orde	r:	_		0004		
Installation:	D	AVIS - Davis-M			Date:		_	01/05/18			
Location ID:		SD0300			Northing/E	asting:	No	t Collected			
Technician(s):					Kyle Keegan						
, ,				SEDIMEN	Γ SAMPLE						
				Descr							
	NAME ((USCS Symbol)	: color, moist	ture, % by wt, plas		y, toughne	ss, dry strengt	h,consistency			
				N	A						
Sample Depth (ft):		NA			Sample ID				NA		
MS/MSD Collected:		NA		-	Sample Da	ite:	_		NA		
Duplicate ID:		NA			Sample Co	llection 1	Time:		NA		
Sample Container Ty	pe(s):		NA		Sample Co	llection N	Methods:		NA		
Preservative(s):		NA			Analysis/N	lethod(s):		NA			
				SURFACE S	OIL SAMPI	E.					
				Descr	iption						
	NAME ((USCS Symbol)	: color, moist	ture, % by wt, plas	sticity, dilatano	y, toughne	ss, dry strengt	h,consistency			
	Well	graded sand	with silt (SV	V-SM), 7.5 YR 6	6/1 (Gray), 9	0% F-C-G	R Sand SR,	10% Fines			
Sample Depth (ft):		0 - 0.5	;		Sample ID			DAVI	S03-SD-004		
MS/MSD Collected:		No			Sample Da	ıte:	_	01/05/18			
Duplicate ID:		NA			Sample Co	llection 1	ime:		10:30		
Sample Container Ty	pe(s):	4 0	z HDPE		Sample Co	llection N	Methods:		Grab		
Preservative(s):		Ice (4 °	C)		Analysis/N	lethod(s):	· _	PFAS (EI	PA 537-modified)		
			S	SURFACE WA	TER SAMI	PLE					
Time	Intake Depth (in)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Duri	ts/Observations ng Purging sediment, etc.)		
NA	NA	NA	NA	NA	NA	NA	NA		NA		
Sample Depth (ft):		NA			Sample Da	ite:			NA		
Sample ID:		NA			Sample Co	llection 1	ime:		NA		
MS/MSD Collected:		NA			Sample Co	llection N	/lethods:	NA			
Duplicate ID:		NA			Surface W	ater Dept	h (ft):		NA		
Sample Container Ty	pe(s):		NA		Water Bod	y and Wa	ter Quality (Characteristics:			
Preservative(s):		NA						NA			
Analysis/Method(s):		NA		_				INA			
Location Sketch:					Instrume	nts (Man	ufacturer, I	Model, and Serial	l No.):		
	Λ	5003	460		Equipment C	alibrated (//N):		NA		
\sim	110	2007	10		Calibrated W				NA		
W	- (Vna	· Le				_				
5	5006	131					Othe	er(s): Nitrile Gloves			
	No.	D			Natari				lo:		
	1000		5		Notes:		e Aviation Bike Golf Links Rd	eway bridge just north	Signature: Name (print):	-	
					1				Kyle Keega	ın	
QA/QC'd bv:	Thomas W. Hense	1	Harris	28 Menses	1	QA/	QC Date:	1,	/10/2018		



APPENDIX C LABORATORY ANALYTICAL REPORTS (DVD)



APPENDIX D DATA VALIDATION REPORT



DATA VALIDATION REPORT SITE INSPECTION OF AQUEOUS FILM FORMING FOAM (AFFF) RELEASE AREAS ENVIRONMENTAL PROGRAMS WORLDWIDE DAVIS-MONTHAN AIR FORCE BASE

Samples Collected Between 13 October and 5 January 2018

Prepared for:

Air Force Civil Engineer Center

Joint Base San Antonio – Lackland, Texas





Prepared by:



Contract FA8903-16-D-0027 Task Order 0004

February 2018

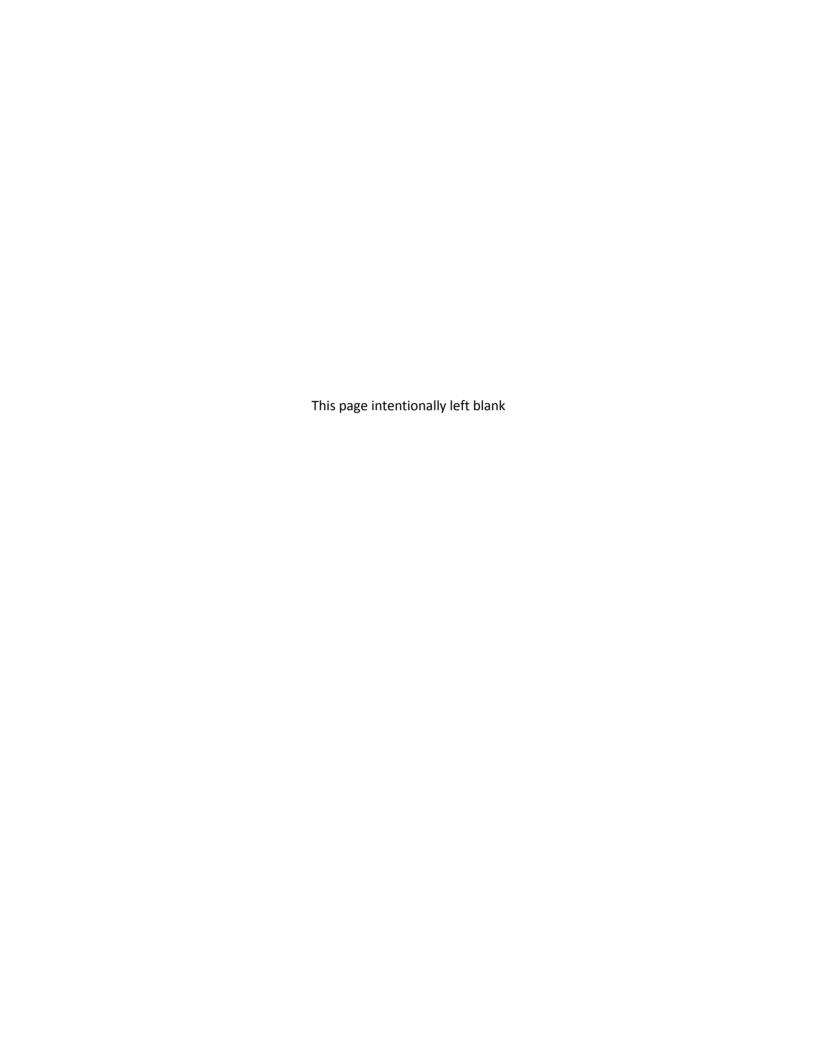


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Table 2 Field Duplicate Detections

Table 3 Qualifiers Added During Validation

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ACRONYMS AND ABBREVIATIONS

μg/L Micrograms Per Liter

% Percent

6:2 FTS 6:2 Fluorotelomer Sulfonate 8:2 FTS 8:2 Fluorotelomer Sulfonate

AFFF Aqueous Film Forming Foam

CCV Continuing Calibration Verification
CLP Contract Laboratory Program

COC Chain Of Custody

DL Detection Limit

DoD Department Of Defense

EPA United States Environmental Protection Agency
EtFOSAA Ethylperfluorooctane Sulfonamidoacetic Acid

ICV Initial Calibration Verification

ID Identification

IDW Investigation Derived Waste

LCS Laboratory Control Sample

LCSD Laboratory Control Sample Duplicate

LOQ Limit Of Quantification

MeFOSAA Methylperfluorooctane Sulfonamidoacetic Acid

mg/kg milligrams per kilogram

MS Matrix Spike

MSD Matrix Spike Duplicate

PFASs Per- And Polyfluoroalkyl Substances

PFBS Perfluorobutanesulfonic Acid

PFDA Perfluorodecanoic Acid
PFDoA Perfluorododecanoic Acid
PFHpA Perfluoroheptanoic Acid

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PFHxA Perfluorohexanoic Acid

PFHxS Perfluorohexanesulfonic Acid

PFNA Perfluorononanoic Acid
PFOA Perfluorooctanoic Acid

PFOS Perfluorooctanesulfonic Acid
PFTeDA Perfluorotetradecanoic Acid
PFTrDA Perfluorotridecanoic Acid
PFUnA Perfluoroundecanoic Acid

QC Quality Control

QPP Quality Program Plan

RPD Relative Percent Difference

SGS SGS Accutest

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) collected 20 soil samples (including 2 field duplicates), 6 sediment samples (including 1 field duplicate), and 25 water samples (including 1 field duplicate, 14 equipment blanks, and 3 field blanks) between 13 October 2017 and 5 January 2018, from Davis-Monthan Air Force Base, located in Tucson, Arizona. Amec Foster Wheeler submitted the samples to SGS Accutest (SGS), located in Orlando, Florida, where they were received between 18 October 2017 and 9 January 2018. SGS assigned the samples to sample delivery groups FA48525, FA48619, FA48866, FA50519, FA50630, and FA50736, and analyzed the samples for per- and polyfluoroalkyl substances (PFASs) by Modified United States Environmental Protection Agency (EPA) Method 537, using the modifications to EPA Method 537 specified in the laboratory's analytical standard operating procedure MS014.3. Additionally, 4 investigation derived waste (IDW) samples were collected associated with SDG FA48866. The results from the IDW samples were not validated. A list of these samples by field sample identification (ID), sample collection date, sample matrix, and laboratory sample ID is presented in Table 1.

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2.0 DATA VALIDATION METHODOLOGY

Amec Foster Wheeler performed EPA Stage 4 validation on 10 percent (%) of the samples and EPA Stage 2B validation on the remaining samples associated with this sampling event as indicated on Table 1. IDW sample results were not validated. The Stage 4 validation includes review of the quality control (QC) results in the laboratory's analytical report and reported on QC summary forms as well as recalculation checks and review of the instrument raw data outputs. The Stage 2B validation includes review of the QC results in the laboratory's analytical report and reported on QC summary forms with no review of the associated raw data. Data from equipment and field blanks did not undergo validation because results from these samples are only used to assess data usability for field samples. This data validation has been performed in general accordance with:

- Amec Foster Wheeler, 2017. Working Copy Final (Revision 1), Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas, Environmental Programs Worldwide, Quality Program Plan (QPP), Contract FA8903-16-D-0027, Task Order 0004, December 2017.
- Department of Defense (DoD), 2013. DoD Quality Systems Manual for Environmental Laboratories, Version 5.0. July 2013.
- EPA, 2009. Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry, Version 1.1, September 2009. EPA Document #: EPA/600/R-08/092.
- EPA, 2014. EPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review, EPA/540-R-014-002.

The CLP guideline was written specifically for the CLP, and has been modified for the purposes of this data review where it differs from method-specific, QPP-specified, and laboratory-specified QC requirements.

The laboratory's certified analytical report and supporting documentation were reviewed to assess the following:

- Data package and electronic data deliverable completeness;
- Laboratory case narrative review;
- Chain of custody (COC) compliance;
- Holding time compliance;
- QC sample frequency;
- Initial calibration, initial calibration verification (ICV), and continuing calibration verification (CCV) compliance with method-specified criteria;
- Presence or absence of laboratory contamination as demonstrated by laboratory blanks;

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- Accuracy and bias as demonstrated by recovery of surrogate spikes, laboratory control sample (LCS), and matrix spike (MS) samples;
- Internal standard recoveries;
- Analytical precision as relative percent difference (RPD) of analyte concentration between laboratory duplicates or MS/MS duplicate (MSD);
- Sampling and analytical precision as RPD of analyte concentration between field duplicates;
- Assessment of field contamination as demonstrated by field and equipment blanks;
- Insofar as possible, the degree of conformance to method requirements and good laboratory practices.

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all QC audits are passed. Strict QC serves to increase confidence in data, but any reported value may potentially contain error.

3.0 EXPLANATION OF DATA QUALITY INDICATORS

Summary explanations of the specific data quality indicators reviewed during this data quality review are presented below.

3.1 LABORATORY CONTROL SAMPLE RECOVERIES

LCSs and LCS duplicates (LCSDs) are aliquots of analyte-free matrices that are spiked with the analytes of interest for an analytical method, or a representative subset of those analytes. The spiked matrix is then processed through the same analytical procedures as the samples they accompany. LCS recovery is an indication of a laboratory's ability to successfully perform an analytical method in an interference-free matrix.

3.2 MATRIX SPIKE RECOVERIES

MSs and MSDs are prepared by adding known amounts of the analytes of interest for an analytical method, or a representative subset of those analytes, to an aliquot of sample. The spiked sample is then processed through the same extraction, concentration, cleanup, and analytical procedures as the unspiked samples in an analytical batch.

MS recovery and precision are an indication of a laboratory's ability to successfully recover an analyte in the matrix of a specific sample or closely related sample matrices. It is important not to apply MS results for any specific sample to other samples without understanding how the sample matrices are related.

3.3 BLANK CONCENTRATIONS

Blank samples are aliquots of analyte free matrix that are used as negative controls to verify that the sample collection, storage, preparation, and analysis system does not produce false positive results.

Equipment blanks are prepared by passing analyte-free water through or over sample collection equipment and collecting the water in sample containers. Equipment blanks are analyzed for the analytical suite required for the project. Equipment blanks are used to monitor for possible sample contamination during the sample collection process and serve as a check on the effectiveness of field decontamination procedures.

Field blanks are prepared by pouring an aliquot of analyte-free water into a sample container in the field. Field blanks are analyzed for the analytical suite required for the project. Field blanks are used to monitor for possible sample contamination originating from the water used for equipment decontamination.

Laboratory, equipment, and field blanks are processed by the laboratory using exactly the same procedures as the field samples. Target analytes should not be found in laboratory blanks.

When target analytes are detected in blanks, analyte concentrations in the associated samples less than 10 times the concentration detected in the blank will be B qualified.

3.4 LABORATORY AND FIELD DUPLICATES

Laboratory and field duplicate analysis verifies acceptable method precision by the laboratory at the time of preparation and analysis and/or sampling precision at the time of collection.

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4.0 DEFINITIONS OF QUALIFIERS THAT MAY BE USED DURING DATA VALIDATION

- B The analyte was detected in the sample and an associated blank and the concentration detected in the sample was less than 10 times the concentration detected in the blank.
- **U** The analyte was analyzed for, but was not detected.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- Q The analyte is both B qualified because of blank detection and J qualified because of an additional QC issue.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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5.0 QUALIFICATION REASON CODES

Amec Foster Wheeler applied the following reason code to the data during validation:

- The analyte was detected in an equipment blank at a concentration greater than the limit of quantification (LOQ) and the concentration detected in the sample is less than ten times the concentration detected in the blank.
- FDD Imprecision between field duplicate results.
- SGL Low surrogate recovery. Result may be biased low.
- TR Detected concentration is less than the LOQ.

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6.0 CHAIN OF CUSTODY AND SAMPLE RECEIPT CONDITION DOCUMENTATION

The samples were received at the laboratory under proper COC, intact, properly preserved, and at temperatures less than the QPP-specified maximum of 10 degrees Celsius.

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7.0 SPECIFIC DATA VALIDATION FINDINGS

Results from these samples may be considered usable with the limitations and exceptions described Sections 7.1 through 0.

7.1 PER- AND POLYFLUOROALKYL SUBSTANCES BY MODIFIED EPA METHOD 537

PFAS results generated by SGS are usable with the limitations described in Sections 7.1.1 through 7.1.12.

7.1.1 Holding Times

The aqueous samples were extracted for PFASs within the QPP-specified maximum holding time of 14 days from sample collection and the extracts were analyzed within the QPP-specified maximum hold time of 28 days from extraction. The solid samples were extracted for PFASs within the method-recommended maximum holding time of 60 days from sample collection and the extracts were analyzed within the method-recommended 30 days from extraction.

7.1.2 Initial Calibrations

The ICALs associated with the analysis of these samples met the QPP-specified criteria of correlation coefficients greater than 0.99 and the calibration standards calculating to 75 to 125% of its true concentrations.

7.1.3 Initial Calibration Verification

ICV recoveries were within the QPP-specified 75% to 125% limits.

7.1.4 Continuing Calibration Verification

CCV recoveries were within the QPP specified 75% to 125% limits.

7.1.5 Laboratory Blanks

PFASs were not detected in the laboratory blanks associated with these samples, with the following exception.

- Perfluorohexanesulfonic acid (PFHxS) and perfluorooctanesulfonic acid (PFOS) were detected at concentrations of 0.0119 micrograms per liter (μg/L) and 0.0124 μg/L, respectively, in the laboratory blank associated with the analysis of equipment blanks DAVIS-EB-001, DAVIS-EB-002, DAVIS-EB-003, DAVIS-EB-004, and DAVIS-EB-005; and field blanks DAVIS-FB-001 and DAVIS-FB-002. Amec Foster Wheeler does not qualify equipment and field blank results and overall data usability is not adversely affected by the blank detections.
- PFOS was detected at a concentration of 0.00489 μg/L in the laboratory blank associated with the analysis of equipment blanks DAVIS-EB-007 and DAVIS-EB-008. Amec Foster Wheeler does not qualify equipment blank results and overall data usability is not adversely affected by the blank detections.

7.1.6 Field and Equipment Blanks

PFASs were not detected in the field and equipment blanks associated with these samples, with the following exceptions:

- PFOS was detected at a concentration of 0.0196 µg/L, equivalent to 0.00235 milligrams per kilogram (mg/kg), in equipment blank DAVIS-EB-004, associated with samples DAVIS01-SO-005 and DAVIS01-SO-007. PFOS was detected in these samples at concentrations greater than ten times the concentration detected in the blank and data usability is not adversely affected.
- PFOS was detected at a concentration of 0.0151 μ g/L, equivalent to 0.00181 mg/kg, in equipment blank DAVIS-EB-007, associated with samples DAVIS01-SO-002 and DAVIS01-SO-003. PFOS was detected in sample DAVIS01-SO-002 at a concentration greater than ten times the concentration detected in the blank and PFOS was not detected in sample DAVIS01-SO-003. Data usability is not adversely affected.
- PFOS was detected at a concentration of 0.0545 μ g/L, equivalent to 0.00654 mg/kg, in equipment blank DAVIS-EB-008, associated with samples DAVIS01-SO-004 and DAVIS-FD-SO-001. Amec Foster Wheeler B qualified the detected PFOS results from samples DAVIS01-SO-004 and DAVIS-FD-SO-001 beca8use the detected results were less than ten times the concentration detected in the blank. (Qualifier and reason code: B-EBG)
- PFOS was detected at a concentration of 0.00663 μg/L, equivalent to 0.000796 mg/kg, in equipment blank DAVIS-EB-009, associated with samples DAVIS02-SO-001 and DAVIS-FD-SO-002. PFOS was not detected in these samples and data usability is not adversely affected.
- PFOS was detected at a concentration of $0.0500~\mu g/L$ in equipment blank DAVIS-EB-013, associated with sample DAVIS03-GW-001. PFOS was not detected in this sample and data usability is not adversely affected.

7.1.7 Laboratory Control Sample Accuracy

LCS recoveries were within QPP-specified 70 to 130% limits, with the following exception:

Methylperfluorooctane sulfonamidoacetic acid (MeFOSAA) and 6:2 fluorotelomer sulfonate (6:2 FTS) recoveries were high at 131% and 133%, respectively, in the LCS associated with the analysis of equipment blanks DAVIS-EB-009, DAVIS-EB-010, and DAVIS-EB-011. Amec Foster Wheeler does not qualify equipment blank results and overall data usability is not adversely affected by the potentially high analytical bias.

7.1.8 Matrix Spikes/ Matrix Spike Duplicates

SGS performed MS and/or MSD analyses on samples DAVIS03-SD-002, DAVIS-FD-SO-002, and DAVIS02-GW-001 and an MS on sample DAVIS01-GW-001. Recoveries were within the QPP-specified 70 to 130% limits and RPDs between MS and MSD results were less than the QPP-specified maximum of 30%.

7.1.9 Laboratory Duplicate

SGS performed a duplicate analysis on sample DAVIS-EB-003. RPDs between primary and duplicate results were less than 30% or differences between primary and duplicate results were less than the LOQ.

7.1.10 Surrogate Recoveries

Surrogate recoveries were within the QPP-specified 70 to 130% limits for field samples analyzed at dilutions up to five-fold, with the following exception:

- Surrogate compounds were not recovered in the 10-fold dilutions performed on samples
 DAVIS01-SO-001 and DAVIS01-SD-001; the 50-fold dilution performed on sample DAVIS01-SO-007;
 and the 100-fold dilutions performed on samples DAVIS01-SO-005 and DAVIS01-SO-001. These
 samples were diluted past the instrument's ability to accurately resolve the surrogate compounds
 and it is not possible to evaluate data usability based on surrogate recoveries for these analyses.
- Recoveries of the surrogate compound ¹³C₂-perfluorohexanoic acid (PFHxA) were low in the analysis of samples DAVISO1-SO-002 (62%), DAVIS-FD-SD-001 (67%), and DAVISO2-GW-003 (66%). These recoveries were within laboratory-specified limits and SGS did not re-extract or re-analyze these samples. Amec Foster Wheeler J qualified the detected and UJ qualified the non-detected PFHxA, perfluoroheptanoic acid (PFHpA), perfluorooctanoic acid (PFOA), perfluorobutanesulfonic acid (PFBS), PFHxS, PFOS, and 6:2 FTS results from these samples because of the potential low analytical bias. (Qualifier and reason code: J/UJ-SGL)
- Recoveries of the surrogate compounds ¹³C₂-PFHxA, ¹³C₂-perfluorodecanoic acid (PFDA), and d5-ethylperfluorooctane sulfonamidoacetic acid (EtFOSAA) were low in the analysis of samples DAVISO1-SO-003 (62%, 66%, 68%, respectively), DAVISO3-SD-001 (62%, 67%, 68%, respectively), and DAVIS-FD-SO-001 (62%, 64%, 63%, respectively). These recoveries were within laboratory-specified limits and SGS did not re-extract or reanalyze this sample. Data limitations are summarized below.
 - The detected PFOS result from sample DAVIS-FD-SO-001 was previously B qualified because of a
 detection in the associated equipment blank and it is not possible to apply combined qualifiers
 on this project. Amec Foster Wheeler Q qualified this result to indicate that the result should be
 both B qualified and J qualified because of the potential low analytical bias. (Qualifier and reason
 code: Q-SGL)
 - Amec Foster Wheeler J qualified the remaining detected and UJ qualified the non-detected PFAS
 results from these samples because of the potential low analytical bias. (Qualifier and reason
 code: UJ-SGL)
- Recoveries of the surrogate compounds ¹³C₂-PFHxA and ¹³C₂-PFDA were low at 68% and 69%, respectively, in the analysis of sample DAVISO3-SD-003. These recoveries were within laboratory-specified limits and SGS did not re-extract or reanalyze this sample. Amec Foster Wheeler UJ qualified the non-detected PFHxA, PFHpA, PFOA, perfluorononanoic acid (PFNA), PFDA, perfluoroundecanoic

acid (PFUnA), perfluorododecanoic acid (PFDoA), perfluorotridecanoic acid (PFTrDA), perfluorotetradecanoic acid (PFTeDA), PFBS, PFHxS, PFOS, 6:2 FTS, and 8:2 fluorotelomer sulfonate (8:2 FTS) results from this sample because of the potential low analytical bias. (Qualifier and reason code: UJ-SGL)

7.1.11 Internal Standard Recoveries

Internal standard areas were within the QPP-specified limits of 50 to 150% of the average area counts measured during the initial calibration, with the following exception:

Recoveries of the internal standard ¹³C₂-6:2 FTS were high at 189% and 210% in the 10-fold dilutions performed on samples DAVIS01-SO-005 and DAVIS01-SO-001, respectively. 6:2 FTS and 8:2 FTS were reported from the 100-fold dilutions performed on these samples and data usability is not adversely affected.

7.1.12 Data Reporting and Analytical Procedures

SGS J qualified analytes with concentrations between the detection limit (DL) and the LOQ. Amec Foster Wheeler agrees that these results are quantitatively uncertain and has J qualified these results. (Qualifier and reason code: J-TR)

SGS calibrates their instrument using both linear and branched isomers, when available, but the solution used for calibration verification and spiking contains linear isomers only. The analytical software is unable to correctly auto-integrate analytes when peaks for both linear and branched isomers are present, so the calibration standards, CCVs, and samples containing both linear and branched isomers require manual integration.

8.0 FIELD DUPLICATE RESULTS

Amec Foster Wheeler collected a field duplicate with samples:

- DAVIS03-SD-001 (DAVIS-FD-SD-001)
- DAVIS01-SO-004 (DAVIS-FD-SO-001)
- DAVIS02-SO-001 (DAVIS-FD-SO-002)
- DAVIS02-GW-001 (DAVIS-FD-GW-001)

Detected results and RPDs for the field duplicate are summarized in Table 2. Precision values were within the QPP-specified limits of less than 30% RPD or the difference between analytical results less than the LOQ, with the following exception:

The RPD between PFOS results from sample DAVIS01-SO-004 and its field duplicate DAVIS-FD-SO-001 was high at 135%. These results were previously B qualified because of a target analyte detection in an associated equipment blank and it is not possible to apply combined qualifiers on this project. Amec Foster Wheeler Q qualified these results to indicate that the results should be both B qualified and J qualified because of the potential sampling or analytical imprecision. (Qualifier and reason code: Q-FDD)

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9.0 SUMMARY AND CONCLUSIONS

Amec Foster Wheeler evaluated a total of 544 data records from field samples during the validation. Amec Foster Wheeler J or UJ qualified 100 records (18.4%) as estimated values because of low surrogate recoveries, analyte concentrations between the DL and the LOQ, and/or field duplicate imprecision. Amec Foster Wheeler also Q qualified 2 records (0.4%) because of target analyte detections in associated equipment blanks and 100% of the data should be considered usable, meeting the QPP-specified 90% completeness goal. Qualified data are summarized in Table 3.

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REFERENCES

- Amec Foster Wheeler, 2017. Working Copy Final (Revision 1), Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas, Environmental Programs Worldwide, Quality Program Plan (QPP), Contract FA8903-16-D-0027, Task Order 0004, December 2017.
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- EPA, 2009. Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), Version 1.1, September 2009. EPA Document #: EPA/600/R-08/092.
- EPA, 2014. EPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review, EPA/540-R-014-002.

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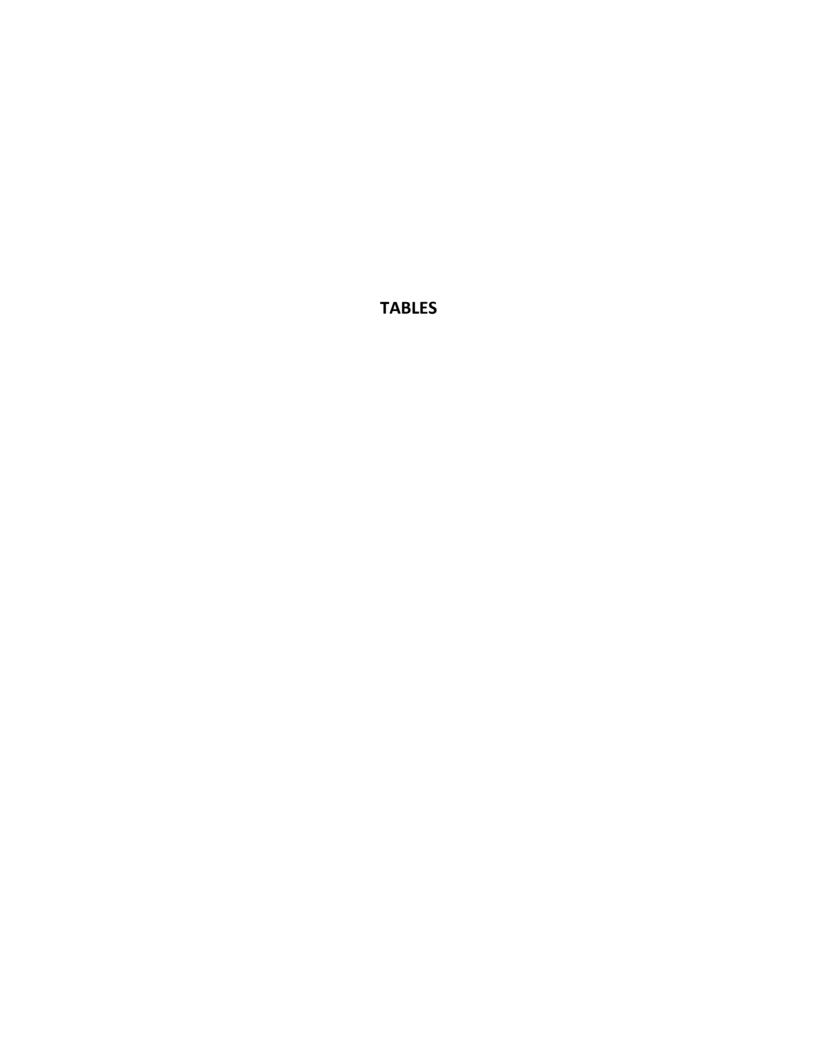


Table 1 Field Samples Submitted to SGS Accutest Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide Arnold Air Force Base, Tennessee

Sample	Collection		Laboratory	
		Sample Matrix	Sample	Notes
Identification	Date		Identification	
DAVIS03-SO-001	10/13/2017	Soil	FA48525-1	
DAVIS03-SO-002	10/14/2017	Soil	FA48525-2	
DAVIS03-SO-003	10/15/2017	Soil	FA48525-3	
DAVIS03-SO-004	10/15/2017	Soil	FA48525-4	
DAVIS-EB-001	10/13/2017	QC Water	FA48525-5	Equipment Blank
DAVIS-EB-002	10/14/2017	QC Water	FA48525-6	Equipment Blank
DAVIS-EB-003	10/15/2017	QC Water	FA48525-7	Equipment Blank, Laboratory Duplicate
DAVIS-EB-004	10/16/2017	QC Water	FA48525-8	Equipment Blank
DAVIS-FB-001	10/13/2017	QC Water	FA48525-9	Field Blank
DAVIS-FB-002	10/13/2017	QC Water	FA48525-10	Field Blank
DAVIS01-SO-005	10/16/2017	Soil	FA48525-11	Stage 4
DAVIS01-SO-006	10/16/2017	Soil	FA48525-12	Stage 4
DAVIS01-SO-007	10/16/2017	Soil	FA48525-13	
DAVIS01-SO-008	10/16/2017	Soil	FA48525-14	
DAVIS-EB-005	10/16/2017	QC Water	FA48525-15	Equipment Blank
DAVIS01-SO-001	10/18/2017	Soil	FA48619-1	
DAVIS-EB-006	10/18/2017	QC Water	FA48619-2	Equipment Blank
DAVIS01-SD-001	10/26/2017	Sediment	FA48866-1	Stage 4
DAVIS01-SO-002	10/24/2017	Soil	FA48866-2	
DAVIS01-SO-003	10/24/2017	Soil	FA48866-3	
DAVIS01-SO-004	10/26/2017	Soil	FA48866-4	
DAVIS03-SD-001	10/26/2017	Sediment	FA48866-5	
DAVIS03-SD-002	10/26/2017	Sediment	FA48866-6	MS/MSD
DAVIS03-SD-003	10/27/2017	Sediment	FA48866-7	
DAVIS-EB-007	10/24/2017	QC Water	FA48866-8	Equipment Blank
DAVIS-EB-008	10/26/2017	QC Water	FA48866-9	Equipment Blank
DAVIS-FD-SD-001	10/26/2017	Sediment	FA48866-10	Field Duplicate of DAVIS03-SD-001
DAVIS-FD-SO-001	10/26/2017	Soil	FA48866-11	Field Duplicate of DAVIS01-SO-004
DAVIS-SOLIDS IDW-BIN	10/27/2017	IDW	FA48866-12	IDW - Not Validated
DAVIS-SOLIDS IDW-BIN	10/27/2017	IDW	FA48866-13	IDW - Not Validated
DAVIS-SOLIDS IDW-BIN	10/27/2017	IDW	FA48866-14	IDW - Not Validated
DAVIS-SOLIDS IDW-BIN	10/27/2017	IDW	FA48866-15	IDW - Not Validated
DAVIS02-SO-001	12/19/2017	Soil	FA50519-1	
DAVIS02-SO-002	12/20/2017	Soil	FA50519-2	
DAVIS02-SO-003	12/21/2017	Soil	FA50519-3	
DAVIS02-SO-005	12/21/2017	Soil	FA50519-4	
DAVIS02-SO-006	12/21/2017	Soil	FA50519-5	
DAVIS02-SO-007	12/21/2017	Soil	FA50519-6	
DAVIS-EB-009	12/19/2017	QC Water	FA50519-7	Equipment Blank
DAVIS-EB-010	12/20/2017	QC Water	FA50519-8	Equipment Blank
DAVIS-EB-011	12/21/2017	QC Water	FA50519-9	Equipment Blank
DAVIS-FD-SO-002	12/19/2017	Soil	FA50519-10	Field Duplicate of DAVIS02-SO-001, MS/MSD
DAVIS01-GW-001	1/3/2018	Ground Water	FA50630-1	MS
DAVIS-EB-012	1/2/2018	QC Water	FA50630-2	Equipment Blank
DAVIS-EB-013	1/3/2018	QC Water	FA50630-3	Equipment Blank

Field Samples Submitted to SGS Accutest Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide Arnold Air Force Base, Tennessee

Sample	Collection Date		Laboratory	
Identification		Sample Matrix	Sample	Notes
lucitification			Identification	
DAVIS-FB-003	1/2/2018	QC Water	FA50630-4	Field Blank
DAVIS02-GW-002	1/4/2018	Ground Water	FA50736-1	Stage 4
DAVIS03-GW-001	1/4/2018	Ground Water	FA50736-2	
DAVIS-EB-014	1/4/2018	QC Water	FA50736-3	Equipment Blank
DAVIS02-GW-001	1/5/2018	Ground Water	FA50736-4	MS/MSD
DAVIS-FD-GW-001	1/5/2018	Ground Water	FA50736-5	Field Duplicate of DAVIS02-GW-001
DAVIS02-GW-004	1/5/2018	Ground Water	FA50736-6	
DAVIS02-GW-003	1/5/2018	Ground Water	FA50736-7	
DAVIS02-GW-006	1/5/2018	Ground Water	FA50736-8	
DAVIS03-SD-004	1/5/2018	Sediment	FA50736-9	

Notes:

IDW = Investigation Derived Waste

MS = Matrix Spike

MSD = Matrix Spike Duplicate

Field Duplicate Detections

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide

Davis-Monthan Air Force Base, Arizona

Analyte	Average LOQ	Primary Sample	Field Duplicate	Units	RPD	Notes
	Samples I	DAVIS03-SD-001 and	d DAVIS-FD-SD-001			
PFOS	0.0020	0.00133 J	0.00151 J	mg/kg	13%	
Samples DAVIS01-SO-004 and DAVIS-FD-SO-001						
PFOS	0.0024	0.000620	0.00321	mg/kg	135%	J-FDD
Samples DAVIS02-SO-001 and DAVIS-FD-SO-002						
No Target Analyte Detections						
Samples DAVIS02-GW-001 and DAVIS-FD-GW-001						
No Target Analyte Detections						

Notes:

LOQ = limit of quantification mg/kg = milligrams per kilogram NC = not calculable PFOS = perfluorooctanesulfonic acid RPD = relative percent difference

Qualifier Definitions:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- U = The analyte was analyzed for, but was not detected above the reported limit of detection.

Reason Codes:

 \pm LOQ = The difference between analyte concentrations is less than the LOQ, indicating acceptable analytical precision.

FDD = Imprecision between field duplicate results.

Qualifiers Added During Validation

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas

Environmental Programs Worldwide

Davis-Monthan Air Force Base, Arizona

0 1 1 1 10 11	Validation Qualifiers a		
Sample Identification	Analyte	Results	Reason Codes
DAVIS01-SD-001	PFBS	0.000811 mg/kg	J TR
DAVIS01-SD-001	PFHpA	0.000993 mg/kg	J TR
DAVIS01-SD-001	PFNA	0.00129 mg/kg	J TR
DAVIS01-SD-001	PFTeDA	0.00145 mg/kg	J TR
DAVIS01-SO-002	6:2 FTS	0.0039 mg/kg	UJ SGL
DAVIS01-SO-002	PFBS	0.00098 mg/kg	UJ SGL
DAVIS01-SO-002	PFHpA	0.00098 mg/kg	UJ SGL
DAVIS01-SO-002	PFHxA	0.000673 mg/kg	J SGL, TR
DAVIS01-SO-002	PFHxS	0.00098 mg/kg	UJ SGL
DAVIS01-SO-002	PFOA	0.00098 mg/kg	UJ SGL
DAVIS01-SO-002	PFOS	0.0582 mg/kg	J SGL
DAVIS01-SO-003	6:2 FTS	0.0043 mg/kg	UJ SGL
DAVIS01-SO-003	8:2 FTS	0.0043 mg/kg	UJ SGL
DAVIS01-SO-003	EtFOSAA	0.0043 mg/kg	UJ SGL
DAVIS01-SO-003	MeFOSAA	0.0043 mg/kg	UJ SGL
DAVIS01-SO-003	PFBS	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFDA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFDoA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFHpA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFHxA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFHxS	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFNA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFOA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFOS	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFTeDA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFTrDA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-003	PFUnA	0.0011 mg/kg	UJ SGL
DAVIS01-SO-004	PFOS	0.00062 mg/kg	Q EBG, FDD
DAVIS01-SO-005	8:2 FTS	0.484 mg/kg	J TR
DAVIS01-SO-005	PFNA	0.0157 mg/kg	J TR
DAVIS01-SO-006	PFBS	0.00786 mg/kg	J TR
DAVIS01-SO-006	PFHpA	0.00407 mg/kg	J TR
DAVIS01-SO-007	PFHxA	0.0586 mg/kg	J TR
DAVIS01-SO-008	6:2 FTS	0.00328 mg/kg	J TR
DAVIS01-SO-008	PFHxA	0.0015 mg/kg	J TR
DAVIS01-SO-008	PFOA	0.00183 mg/kg	J TR
DAVIS01-SO-008	PFOS	0.00169 mg/kg	J TR
DAVIS02-GW-003	6:2 FTS	0.031 μg/L	UJ SGL
DAVIS02-GW-003	PFBS	0.012 μg/L	UJ SGL
DAVIS02-GW-003	PFHpA	0.012 μg/L	UJ SGL
DAVIS02-GW-003	PFHxA	0.012 μg/L	UJ SGL
DAVIS02-GW-003	PFHxS	0.012 μg/L	UJ SGL
DAVIS02-GW-003	PFOA	0.0062 μg/L	UJ SGL
DAVIS02-GW-003	PFOS	0.0062 μg/L	UJ SGL

Qualifiers Added During Validation

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas

Environmental Programs Worldwide

Davis-Monthan Air Force Base, Arizona

			Validation Qualifiers and
Sample Identification	Analyte	Results	Reason Codes
DAVIS02-SO-005	PFOS	0.00135 mg/kg	J TR
DAVIS02-SO-006	PFOS	0.00112 mg/kg	J TR
DAVIS02-SO-007	PFOS	0.0007 mg/kg	J TR
DAVIS03-SD-001	6:2 FTS	0.0043 mg/kg	UJ SGL
DAVIS03-SD-001	8:2 FTS	0.0043 mg/kg	UJ SGL
DAVIS03-SD-001	EtFOSAA	0.0043 mg/kg	UJ SGL
DAVIS03-SD-001	MeFOSAA	0.0043 mg/kg	UJ SGL
DAVIS03-SD-001	PFBS	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFDA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFDoA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFHpA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFHxA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFHxS	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFNA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFOA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFOS	0.00133 mg/kg	J SGL, TR
DAVIS03-SD-001	PFTeDA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFTrDA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-001	PFUnA	0.0011 mg/kg	UJ SGL
DAVIS03-SD-002	PFOS	0.00107 mg/kg	J TR
DAVIS03-SD-003	6:2 FTS	0.0039 mg/kg	UJ SGL
DAVIS03-SD-003	8:2 FTS	0.0039 mg/kg	UJ SGL
DAVIS03-SD-003	PFBS	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFDA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFDoA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFHpA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFHxA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFHxS	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFNA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFOA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFOS	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFTeDA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFTrDA	0.00098 mg/kg	UJ SGL
DAVIS03-SD-003	PFUnA	0.00098 mg/kg	UJ SGL
DAVIS03-SO-001	PFOS	0.00172 mg/kg	J TR
DAVIS-FD-SD-001	6:2 FTS	0.004 mg/kg	UJ SGL
DAVIS-FD-SD-001	PFBS	0.001 mg/kg	UJ SGL
DAVIS-FD-SD-001	PFHpA	0.001 mg/kg	UJ SGL
DAVIS-FD-SD-001	PFHxA	0.001 mg/kg	UJ SGL
DAVIS-FD-SD-001	PFHxS	0.001 mg/kg	UJ SGL
DAVIS-FD-SD-001	PFOA	0.001 mg/kg	UJ SGL
DAVIS-FD-SD-001	PFOS	0.00151 mg/kg	J SGL, TR

Qualifiers Added During Validation

Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas

Environmental Programs Worldwide

Davis-Monthan Air Force Base, Arizona

6 1 11 116 11	Analyte		Validation Qualifiers and
Sample Identification		Results	Reason Codes
DAVIS-FD-SO-001	6:2 FTS	0.0048 mg/kg	UJ SGL
DAVIS-FD-SO-001	8:2 FTS	0.0048 mg/kg	UJ SGL
DAVIS-FD-SO-001	EtFOSAA	0.0048 mg/kg	UJ SGL
DAVIS-FD-SO-001	MeFOSAA	0.0048 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFBS	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFDA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFDoA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFHpA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFHxA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFHxS	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFNA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFOA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFOS	0.00321 mg/kg	Q EBG, SGL, FDD
DAVIS-FD-SO-001	PFTeDA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFTrDA	0.0012 mg/kg	UJ SGL
DAVIS-FD-SO-001	PFUnA	0.0012 mg/kg	UJ SGL

Notes:

μg/L = micrograms per liter

mg/kg = milligrams per kilogram

6:2 FTS = 6:2 fluorotelomer sulfonate

8:2 FTS = 8:2 fluorotelomer sulfonate

EtFOSAA = ethylperfluorooctane sulfonamidoacetic acid

MeFOSAA = methylperfluorooctane sulfonamidoacetic acid

PFBS = perfluorobutanesulfonic acid

PFDA = perfluorodecanoic acid

PFDoA = perfluorododecanoic acid

PFHpA = perfluoroheptanoic acid

PFHxA = perfluorohexanoic acid

PFHxS = perfluorohexanesulfonic acid

PFNA = perfluorononanoic acid

PFOA = perfluorooctanoic acid

PFOS = perfluorooctanesulfonic acid

PFTeDA = perfluorotetradecanoic acid

PFTrDA = perfluorotridecanoic acid

PFUnA = perfluoroundecanoic acid

Qualifier Definitions:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- Q = The analyte is both B qualified because of blank detection and J qualified because of an additional quality control issue.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Qualifiers Added During Validation Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide Davis-Monthan Air Force Base, Arizona

Reason Codes:

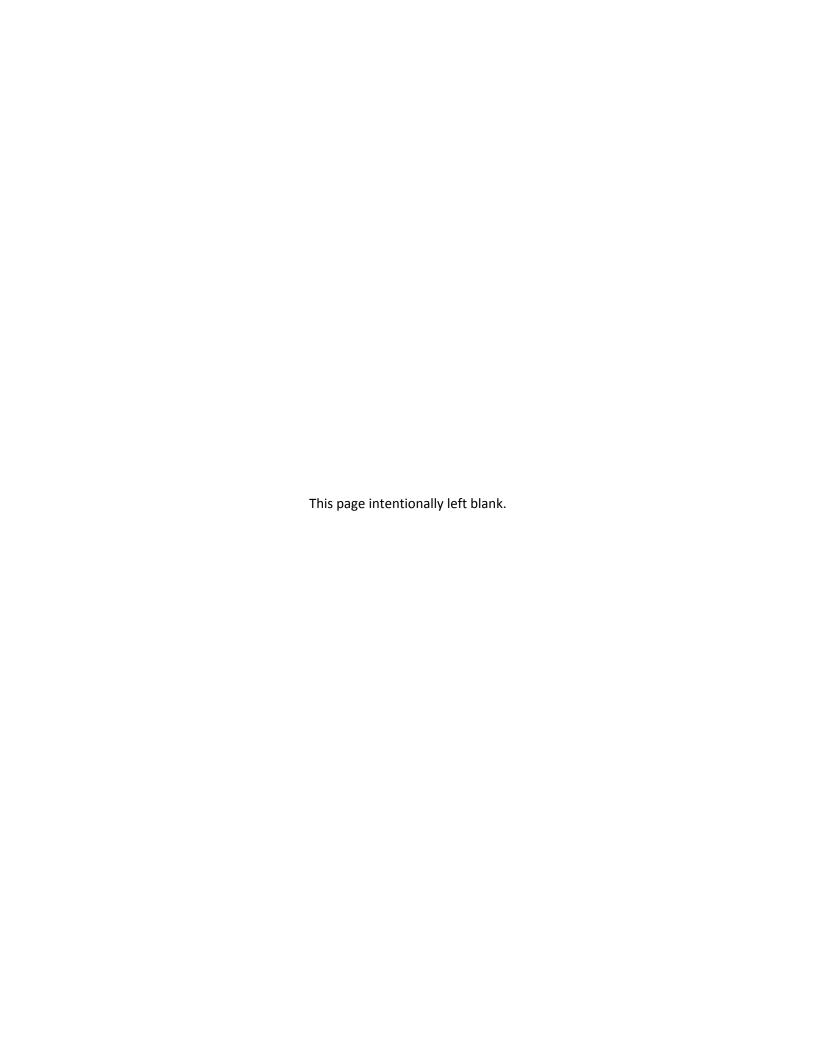
EBG = The analyte was detected in an equipment blank at a concentration greater than the limit of quantification (LOQ) and the concentration detected in the sample is less than 10 times the concentration detected in the blank.

FDD = Imprecision between field duplicate results.

SGL = Low surrogate recovery. Result may be biased low.

TR = Detected concentration is less than the LOQ.

APPENDIX E SURVEY REPORT



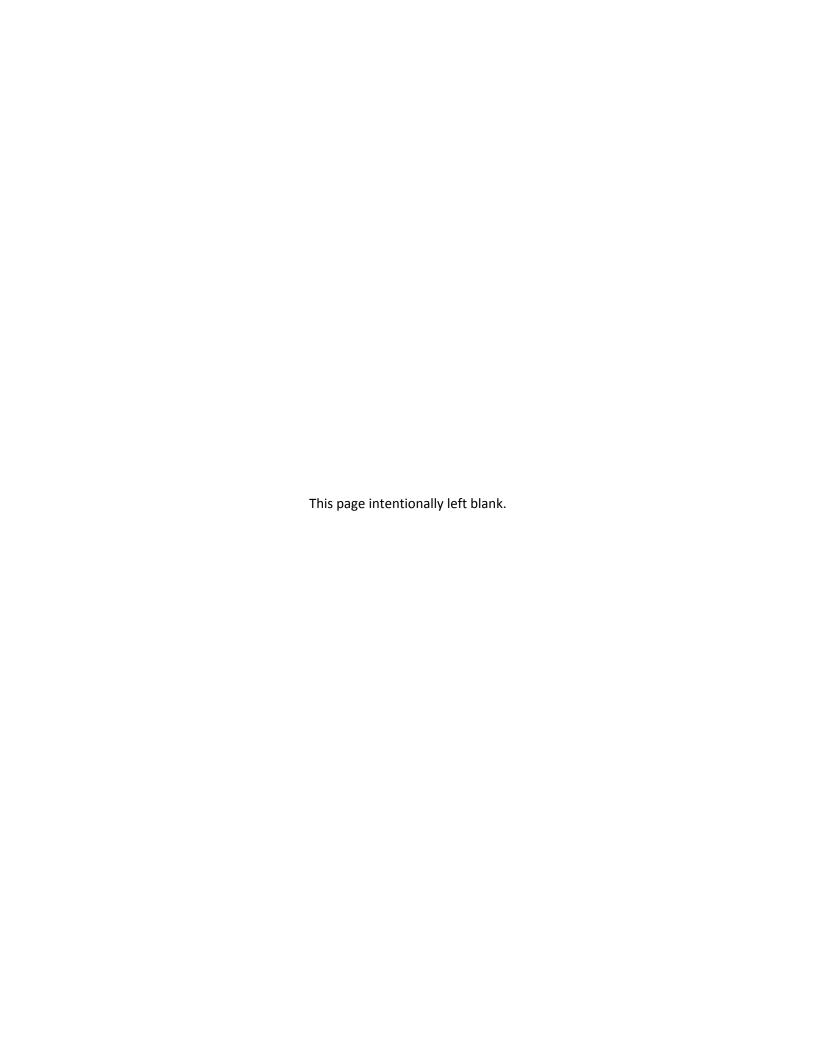
Survey Report Davis Monthan AFB Project No. 775303101

POINT	NORTHING	EASTING	ELEVATION	LATTITUDE	LONGITUDE	WELL ID	DESCRIPTION
20000	435136.93	1015128.81	2565.88	32d11'31.82691"	-110d53'52.68712"	MW 03001	RIM
20001	435137.18	1015128.88	2565.37	32d11'31.82938"	-110d53'52.68622"	MW 03001	N EDGE PVC
20002	435136.40	1015130.15	2565.49	32d11'31.82158"	-110d53'52.67152"	MW 03001	GROUND
20003	423432.06	1024224.95	2686.33	32d09'35.14757"	-110d52'08.17210"	MW 01001	RIM
20004	423433.65	1024225.79	2685.80	32d09'35.16325"	-110d52'08.16211"	MW 01001	GROUND
20005	423432.22	1024224.85	2686.07	32d09'35.14924"	-110d52'08.17327"	MW 01001	N EDGE PVC
20006	423180.53	1024423.42	2688.71	32d09'32.63967"	-110d52'05.89211"	SB 01002	GROUND
20007	423455.64	1024773.28	2691.47	32d09'35.32804"	-110d52'01.79140"	SB 01003	GROUND
20008	434317.17	1014361.30	2564.56	32d11'23.78758"	-110d54'01.70791"	MW 42	RIM
20009	434317.23	1014363.67	2564.03	32d11'23.78799"	-110d54'01.68035"	MW 42	GROUND
20010	434317.11	1014361.36	2563.90	32d11'23.78697"	-110d54'01.70720"	MW 42	N EDGE PVC EXST
20011	419607.72	1025439.02	2711.60	32d08'57.19026"	-110d51'54.48498"	MW 02001	GROUND
20012	419609.03	1025440.05	2711.44	32d08'57.20305"	-110d51'54.47280"	MW 02001	N EDGE PVC
20013	419608.85	1025440.00	2711.72	32d08'57.20137"	-110d51'54.47344"	MW 02001	RIM

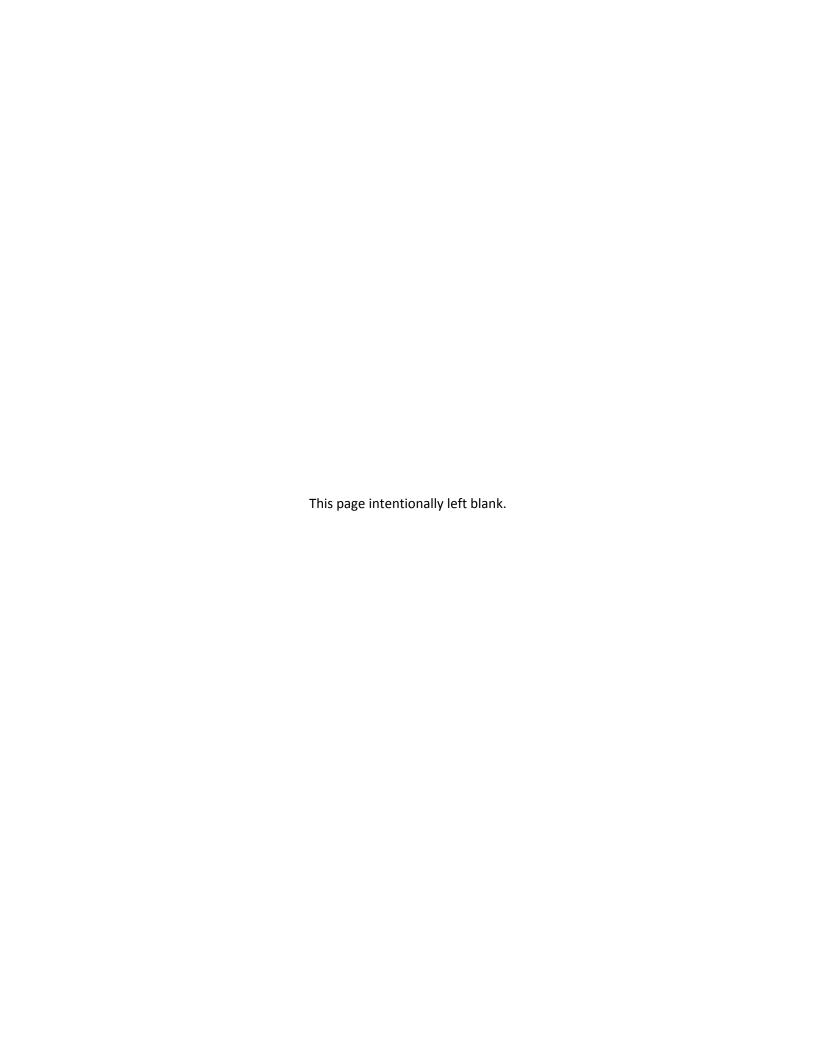
DATUM NAD83 (2011) ARIZONA STATE PLANE COORDINATES CENTRAL ZONE 0202, INTERNATIONAL FEET NAVD88 ELEVATION

This survey was performed under my direct supervision. Field work was completed on January 29, 2018.





APPENDIX F IDW DOCUMENTATION







Requested Facility: Pen-Rob Landfill (Painted Desert), Northwest Region Multiple Generator Locations (Attach Locations)	onal Landfill, Gray
A. GENERATOR INFORMATION (MATERIAL ORIGIN) 1. Generator Name: Davis Monthan AFB 2. Site Address: 3775 S Fifth St (City, State, ZIP) DMAFB, AZ, 85707 3. County: Pima County 4. Contact Name: Stephanie McCary 5. Email: Stephanie.mccary@us.af.mil 6. Phone: 702-652-9365 7. Fax: 8. Generator EPA ID: AZ4570024055	B. BILLING INFORMATION 1. Billing Name: DNT ENVIRONMENTAL SERVICES INC 2. Billing Address: 650 FAIRBURN ROAD SW (City, State, ZIP) ATLANTA GA 30331 3. Contact Name: JOHN TEAGUE 4. Email: JOHN@DNTENVIRONMENTAL COM 5. Phone: (770) 739-5600 6. Fax: (770) 739-8002 7. WM Hauled? 9 Yes 2 No 8. P.O. Number:
9. State ID: 🗹 N/A	9. Payment Method: 🗹 Credit Account 🗀 Cash 🗀 Credit Card
C. MATERIAL INFORMATION 1. Common Name: IDW SOILS Describe Process Generating Material: Investigation Derived Waste from soil/groundwater	D. REGULATORY INFORMATION 1. EPA Hazardous Waste?
investigation drilling	Code: 3. Is this material non-hazardous due to Treatment, Delisting, or an Exclusion? Q Yes* Q No
2. Material Composition and Contaminants: ☐ See Attached 1. SoIL	4. Contains Underlying Hazardous Constituents?
7. pH: 5 to 8 □ N/A 8. Strong Odor: □ Yes ☑ No Describe: □ 9. Flash Point: □ <140°F □ 140°−199°F □ ≥200° ☑ N/A	Medical/Infect ous Waste? 11. Contains Asbestos? → If Yes: □ Non-Friable □ Non-Friable − Regulated □ Friable
E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION 1. Analytical attached 2 Yes Please identify applicable samples and/or lab reports Lab Report: FA48866 Lab Report: FA50735 DAVIS-SOLID IDW-BIN01 DAVIS-SOLID IDW-BIN03 DAVIS-SOLID IDW-BIN05 DAVIS-SOLID IDW-BIN02 DAVIS-SOLID IDW-BIN04 DAVIS-SOLID IDW-BIN06 2. Other information attached (such as MSDS)?	F. SHIPPING AND DOT INFORMATION 1. ☑ One-Time Event ☐ Repeat Event/Ongoing Business 2. Estimated Quantity/Unit of Measure: 150 ☐ Tons ☑ Yards ☐ Drums ☐ Gallons ☐ Other: 3. Container Type and Size 20 YARD ROLLOFF 4. USDOT Proper Shipping Name: ☐ N/A NON-REGULATED MATERIAL NON-HAZARDOUS
G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE) By signing this EZ Profile™ form, I hereby certify that all information submitted in this and all relevant information necessary for proper material characterization and to identify know from a sample that is representative as defined in 40 CFR 261 - Appendix 1 or by using arin the process or new analytical) will be identified by the Generator and be disclosed to Wa	all attached documents contain true and accurate descriptions of this material, and that wn and suspected hazards has been provided. Any analytical data attached was derived a equivalent method. All changes occurring in the character of the material (i.echanges iste Management
If I am an agent signing on behalf of the Generator, I have confirmed with the Generator that information contained in this Profile is accurate and complete. Name (Print): Stephanie McCary Date: 15 May 2018 Title: Remedial Project Manager Company: U.S. Air Force	Certification Signature MCCARY.STEPH Digitally signed by MCCARY.STEPHANIE.D.1363 619165 Date: 2018.05.15 15:09:46 -07'00'





Requested Facility: Pen-Rob Landfill (Painted Desert), Northwest Regi							
☐ Multiple Generator Locations (Attach Locations) ☐ Request Certifica	te of Disposal 🚨 Renewal? Original Profile Number						
A. GENERATOR INFORMATION (MATERIAL ORIGIN)	B. BILLING INFORMATION SAME AS GENERATOR						
1. Generator Name: DAVIS MONTHAN AIR FORCE BASE	Billing Name: DNT ENVIRONMENTAL SERVICES INC						
2. Site Address; 3775 S Fifth St	2. Billing Address: 650 FAIRBURN ROAD SW						
(City, State, ZIP) DMAFB, AZ, 85707	(City, State, ZIP) ATLANTA GA 30331 3. Contact Name: JOHN TEAGUE 4. Email: JOHN@DNTENVIRONMENTAL COM 5. Phone: (770) 739-5600 6. Fax: (770) 739-8002						
3. County: Pima County							
4. Contact Name: Stephanie McCary							
5. Email: stephanie.mccary@us.af.mil							
6. Phone: 702-652-9365 7. Fax:	7. WM Hauled?						
8. Generator EPA ID: <u>AZ4570024055</u> □ N/A	8. P.O. Number:						
9. State ID:	9. Payment Method: 💆 Credit Account 🚨 Cash 🚨 Credit Card						
9, State ID WIN/A	9. Payment Method. W Credit Account						
C. MATERIAL INFORMATION	D. REGULATORY INFORMATION						
1. Common Name: 10W Water	1. EPA Hazardous Waste? ☐ Yes* ☐ No						
Describe Process Generating Material:	Code:						
Investigation Derived Waste from soil/groundwater	2. State Hazardous Waste? ☐ Yes ☐ No						
investigation drilling	Code						
	3. Is this material non-hazardous due to Treatment, Delisting, or an Exclusion? □ Yes* □ No						
2. Material Composition and Contaminants:	4. Contains Underlying Hazardous Constituents? ☐ Yes* ☑ No						
	5. From an industry regulated under Benzene NESHAP? Yes* No						
1. water 100 % 2.	6. Facility remediation subject to 40 CFR 63 GGGGG? ☐ Yes* ☑ No						
3.	7. CERCLA or State-mandated clean-up? ☐ Yes* ☑ No						
4.	8. NRC or State-regulated radioactive or NORM waste? Yes* No						
Total comp. must be equal to or greater than 100% ≥100%	*If Yes, see Addendum (page 2) for additional questions and space.						
3. State Waste Codes; ☑ N/A	9. Contains PCBs? → If Yes, answer a, b and c. ☐ Yes ☑ No						
4. Color: Various/Dark	a. Regulated by 40 CFR 761? ☐ Yes ☐ No						
5. Physical State at 70°F Solid Liquid Other:	b. Remediation under 40 CFR 761.61 (a)? ☐ Yes ☐ No						
6. Free Liquid Range Percentage: 98 to 100 N/A	c. Were PCB imported into the US?						
	10. Regulated and/or Untreated ☐ Yes ☑ No						
7. pH: 5 to 8 D N/A	Medical/Infectious Waste?						
8. Strong Odor: Yes V No Describe	11. Contains Asbestos? ☐ Yes ☑ No						
9. Flash Point: □ <140 F □ 140 -199 F ☑ ≥200 □ N/A	→ If Yes: □ Non-Friable □ Non-Friable — Regulated □ Friable						
E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION	F. SHIPPING AND DOT INFORMATION						
1. Analytical attached 2 Yes	1. 2 One-Time Event						
Please identify applicable samples and/or lab reports	2. Estimated Quantity/Unit of Measure: 1500						
FA51451-1 01/29/18 13:45 01/31/18 AQ Water DAVIS-LIQUID	☐ Tons ☐ Yards ☐ Drums ☑ Gallons ☐ Other:						
IDW-TANK01	3. Container Type and Size: TBD						
	4. USDOT Proper Shipping Name: □ N/A						
2. Other information attached (such as MSDS)?	Non-Regulated Material Non-Hazardous						
G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE) By signing this EZ Profile™ form, I hereby certify that all information submitted in this and all relevant information necessary for proper material characterization and to identify know from a sample that is representative as defined in 40 CFR 261 – Appendix 1 or by using all in the process or new analytical) will be identified by the Generator and be disclosed to Wa	wn and suspected hazards has been provided. Any analytical data attached was derived in equivalent method. All changes occurring in the character of the material (i.e., changes)						
If I am an agent signing on behalf of the Generator, I have confirmed with the Generator that information contained in this Profile is accurate and complete.	Certification Signature MCCARY STEPH Digitally signed by						
Name (Print): Stephanie McCary Date 15 May 2018	MCCARY.STEPHANIE.D.1363 I						
Title: Remedial Project Manager	ANIE.D.13636191 619165						
	Date: 2018.05.15 15:19:55						
Company; U.S. Air Force	-07 00						





		ional Landfill, Gray Unsure Profile Number: 443						
☐ Multiple Generator Locations (Attach Locations)	☑ Request Certifica	ate of Disposal 🔲 Renewal? Original Profile Number:						
A. GENERATOR INFORMATION (MATERIAL ORIGIN)		B. BILLING INFORMATION SAME AS GEN						
D. J. M. H. AFD		1. Billing Name: DNT ENVIRONMENTAL SERVICES						
2. Site Address: 355 CES/CEIE, 3775 S. 5th Street		2. Billing Address: 650 FAIRBURN ROAD SW (City, State, ZIP) ATLANTA GA 30331 3. Contact Name: JOHN TEAGUE						
(City, State, ZIP) Davis-Monthan AFB, AZ 85707								
3. County: Pima								
4. Contact Name: John R. Maisch								
5. Email: john.maisch@us.af.mil		4. Email: JOHN@DNTENVIRONMENTAL.COM	0000					
		5. Phone: (770) 739-5600 6. Fax: (770) 739-		DA M				
6. Phone: 520.228.4774 7. Fax:	Divin	7. WM Hauled? 8. P.O. Number:	☐ Yes	M No				
8. Generator EPA ID: <u>AZ4570024055</u> 9. State ID:	U N/A		20.07.2					
9. State ID:	W N/A	9. Payment Method: 2 Credit Account Cash C	Credit Ca	ard				
C. MATERIAL INFORMATION		D. REGULATORY INFORMATION						
1. Common Name; IDW SOILS		1. EPA Hazardous Waste?	☐ Yes*	No.				
Describe Process Generating Material:	□ See Attached	Code:	103	- 140				
INVESTIGATION DERIVED WASTE FROM MO		2. State Hazardous Waste?	☐ Yes	☑ No				
WELLS	ONITORING	Code:	- 103					
		3. Is this material non-hazardous due to Treatment,		-				
		Delisting, or an Exclusion?	☐ Yes*	M No				
2. Maharial Cardinalities and Carterial and	D.C. Attented	4. Contains Underlying Hazardous Constituents?	☐ Yes*	☑ No				
Material Composition and Contaminants:	☐ See Attached	5. From an industry regulated under Benzene NESHAP?	☐ Yes*	M No				
1. SOIL	0 - 100 %	6. Facility remediation subject to 40 CFR 63 GGGGG?	☐ Yes*	☑ No				
2. Absorbents contaminated with diesel fuel	0 - 100 %	7. CERCLA or State-mandated clean-up?	☐ Yes*	☑ No				
3. Ancilliary Debris 4.	0 - 100 %	8. NRC or State-regulated radioactive or NORM waste?	☐ Yes*	☑ No				
1-47	>100%	*If Yes, see Addendum (page 2) for additional questi	ions and	space.				
Total comp. must be equal to or greater than 100% 3. State Waste Codes:		9. Contains PCBs? → If Yes, answer a, b and c.	☐ Yes	☑ No				
	N/A	a. Regulated by 40 CFR 761?	☐ Yes	□ No				
4. Color: various	10000	b. Remediation under 40 CFR 761.61 (a)?	☐ Yes	□ No				
5. Physical State at 70°F: 2 Solid Liquid Ot		c. Were PCB imported into the US?	☐ Yes	□ No				
6. Free Liquid Range Percentage: to		10. Regulated and/or Untreated	☐ Yes	DÍ No				
7. pH; to		Medical/Infectious Waste?	ies ies	NO.				
8. Strong Odor: Yes No Describe:		11. Contains Asbestos?	☐ Yes	No No				
9. Flash Point: □ <140°F □ 140°-199°F □ ≥2	00" Z N/A	→ If Yes: □ Non-Friable □ Non-Friable − Regula	ated 📮	Friable				
E ANALYTICAL AND OTHER REDRESENTATIVE INCOMAY	ON	E CHIODING AND DOT INCODINATION						
Analytical and Other Representative Informati Analytical attached	☐ Yes	F. SHIPPING AND DOT INFORMATION						
		1. One-Time Event Repeat Event/Ongoing Busin	ess					
Please identify applicable samples and/or lab report	LS:	2. Estimated Quantity/Unit of Measure: 150						
	b Report: FA50735	☐ Tons ☑ Yards ☐ Drums ☐ Gallons ☐ Other	_					
DAVIS-SOLID IDW BINDS DAVIS-SOLID IDW-BIND4	/IS-SOLID IDW-BIN05	Container Type and Size: 20 YARD ROLLOFF		F 1 000				
DAY	/IS-SOLID IDW-BIN06	4. USDOT Proper Shipping Name:		□ N/A				
2. Other information attached (such as MSDS)?	☐ Yes	NON-REGULATED MATERIAL, NON-HAZARDOUS						
all relevant information necessary for proper material characterization a sample that is representative as defined in 40 CFR 261 - A	on submitted in this an ation and to identify kn Appendix 1 or by using	d all attached documents contain true and accurate descriptions of this own and suspected hazards has been provided. Any analytical data atta an equivalent method. All changes occurring in the character of the ma Vaste Management prior to providing the material to Waste Managemen	terial (i.e.,	derived				
If I am an agent signing on behalf of the Generator, I have a Generator that information contained in this Profile is accu	irate and complete.	MAISCH.JOHN.RO Digitally signed by	EDT 4400	404E24				
Name (Print): John R. Maisch Da	ate: 07/05/2018	BERT.1196491534 MAISCH.JOHN.ROBE	38:50 -07"	491534				
Title: Water Manager		Joh R. Maisel	200					
Company: 355 CES DMAFB		or 11 // laisel						

Company: 355 CES DMAFB

NON-HAZARDOUS WASTE MANIFEST

NON-HAZARDOUS MANIFEST	1. Generator's US EPA ID No. US MANIFEST A Z 4 5 7 0 0 2 4 0 5 5				2. Page 1 of 1							
3. Generator's Name and Mailing DAVIS MONTHAN AIRFORCE	Address:		85707	1	A. Manife	st Number B. State	Generator's	ID				
4. Generator's Phone: 702-652-9365		ATTN: STEPHANIE	MCCARY									
5. Transporter 1 Company Name				6. US EPA ID Number								
MP ENVIRONMENTAL		CATO	CAT000624247				C. State Transporter's ID					
7. Transporter 2 Company Name	District Control of the Control of t		8. US EPA ID Number			D. Transporter's Phone 602-278-6233						
Lean Street Control						E. State Transporter's ID						
9. Designated Facility Name and S	O Designated Feetler, Name and Civil Address		10. US EPA ID Number			F. Transporter's Phone						
9. Designated Facility Name and Site Address		IV. USEFA	10. US EPA ID Number			G. State Facility ID						
WM – BUTTERFIELD STATIC							H. State Facility Phone (866) 909-4458					
40404 99th Ave, Maricop	a, AZ 85139						materiality mone (000) 303 4430					
			10.0	ontainers	1	1	-					
\$ 1-4-3-2-4-3 OVE 2 # BUNDED 1 TO 10	11. Description of Waste Materials				13. Total Quantity	14. Unit Wt./Vol.	1. N	lisc. Comme	nts			
NON-REGULATE HAZARDOUS	D MATERIA	L, NON-		п		G						
API	PROVAL: 443743AZ											
c.							-					
d.												
u.												
J. Additional Descriptions for Ma 11A: IDW WATERS	terials Listed Above		K. Dispo	sal Location	1							
			Cell				Level					
CS V V V V V V V V V V V V V V V V V V V			Grid									
15. Special Handling Instructions a	ind Additional Informati	on										
Purchase Order #		EMERGENCY CO	ONTACT / PH	ONE NO.:	602-717-7	163						
16. GENERATOR'S CERTIFICATE: I hereby certify that the above-des			A second second second second		and the second second	the ten and a second of the beautiful to	nave been fu	illy and				
accurately described, classified and Printed Name	d packaged and are in pi			ording to ap	oplicable regu	lations.	1					
- Third Hame		Signature "On beh	alf of"				Month	Day	Year			
17 Transporter 1 Ashrowled	ant of Dossint of Martin	ale										
17. Transporter 1 Acknowledgeme	7. Transporter 1 Acknowledgement of Receipt of Materials Signature						Month	Day	Year			
						July Day						
18. Transporter 2 Acknowledgeme	ent of Receipt of Materi											
Printed Name		Signature					Month	Day	Year			
19. Certificate of Final Treatment/	/Disposal							-				
I certify, on behalf of the above list applicable laws, regulations, perm	ted treatment facility, th		ledge, the a	bove-descr	ibed waste w	as managed	n complianc	e with all				
20. Facility Owner or Operator: C	ertification of receipt of											
Printed Name John R. Maisch		Signatule R	.m	aisch			Month 07	Day 05	Year 2018			
					•		-		-			

White-TREATMENT, STORAGE, DISPOSAL FACILITY COPY

Blue- GENERATOR #2 COPY Gold- TRANSPORTER #1 COPY Yellow- GENERATOR #1 COPY

NON-HAZARDOUS WASTE MANIFEST

NON-HAZARDOUS MANIFEST	1. Generator's US EPA II		Manifest Doc	No.	2, Page 1 o						
3. Generator's Name and Mailing And DAVIS MONTHAN AIRFORCE	ddress:		7 85707		A. Manife	st Number					
4. Generator's Phone: 702-652-9365 ATTN: STEPHANIE MCCARY						B. State Generator's ID					
5. Transporter 1 Company Name		6. US EPA ID Number									
MP ENVIRONMENTAL		CAT000624247			C. State Transporter's ID D. Transporter's Phone						
200 200 000 000 000											
7. Transporter 2 Company Name	8. US EPA II		ID Number		E. State Transporter's ID F. Transporter's Phone 602-278-6233						
9. Designated Facility Name and Sit	e Address	10. US EPA ID Number									
	Se a Fina				G. State Facility ID						
WM – MARANA REGIONAL L					H. State Facility Phone (866) 909-4458						
14508 WEST AVRA VALLEY RO	DAD				11. State racinty Phone (000) 303-4438						
MARANA AZ 85653											
11. Description of Waste Materials			1 34 5	atala	1	1 - 4 a - 14 a - 1					
11. Description of Waste Materials			No.	Type	13. Total Quantity	14. Unit Wt./Vol.	I. M	I. Misc. Comment			
NON-REGULATED	MATERIAL	NON-		1000							
HAZARDOUS				CM		I					
APPE	ROVAL: 443739AZ										
c.				-			-		_		
d.	, is										
J. Additional Descriptions for Mate	erials Listed Above	K. Disposal Location									
11A: IDW SOILS											
			Cell				Level				
15. Special Handling Instructions an	d Additional Information		Grid								
15. Special Handling Instructions an	a Additional information										
Purchase Order#		EMERGENCY (CONTACT / DU	ONE NO .	602-717-7	162					
, y ** ****** **		EIVIERGENCY	JUNIACI / PH	ONE NO.:	002-717-7	103					
16. GENERATOR'S CERTIFICATE: I hereby certify that the above-description	athend acabasis le sue aub hou		Sand by CED I	20 4 261	and a section by	e skake lass. G		the word			
accurately described, classified and							ave been tu	ny and			
Printed Name	paoria des arra arra arra prope			rung to up	spiredbie regu	id thomas		15	1		
		Signature "On be	nair or				Month	Day	Year		
	THE CASE OF THE PARTY OF THE PA										
17. Transporter 1 Acknowledgemen	nt of Receipt of Materials	T									
		Signature					Month	Day	Year		
40 7											
18. Transporter 2 Acknowledgemen	it of Receipt of Materials						1				
Printed Name		Signature					Month	Day	Year		
19. Certificate of Final Treatment/D	isposal										
I certify, on behalf of the above liste			wledge, the a	bove-descr	ibed waste w	as managed in	n complianc	e with all			
applicable laws, regulations, permit			14/10/20								
20. Facility Owner or Operator: Cer	tification of receipt of non			1					T		
Printed Name		Signature	R.1	m.	1		Month	Day	Year 2010		
John R. Maisch		and	1.	· lous			07	05	2018		

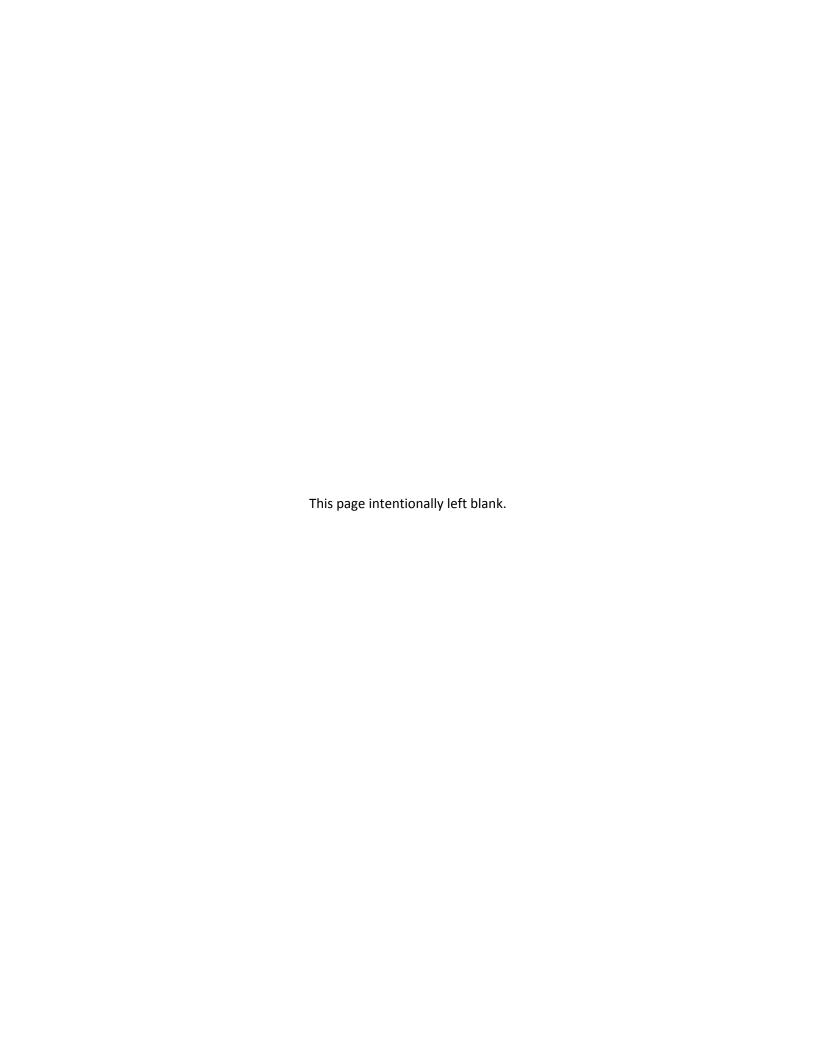






Photo 1:

Landfill 01 (LF-01); The location of soil bin storage at Davis Monthan Air Force Base

Direction of Photo: Southwest



29 January 2018

Photo 2:

Landfill 01 (LF-01); The location of soil bin storage at Davis Monthan Air Force Base. Bins with proper Non-Hazardous labels.

Direction of Photo: Northeast





30 August 2017

Photo 3:

Landfill 01 (LF-01); Bins with proper Non-Hazardous labels.

Direction of Photo: Northeast



29 January 2018

Photo 4:

AFFF Release Area 1 (FT-03 (Former FTA)); Liquid IDW tank storage.

Direction of Photo: Northeast





Photo 5:

AFFF Release Area 02; Staging of soil bins for MW02001 drilling before 29 January 2018

Direction of Photo: East



29 January 2018

Photo 6:

AFFF Release Area 02; Moving bins from the temporary staging area near MW02001.

Direction of Photo: East





Photo 7:

AFFF Release Area 03; Staging of soil bins for MW03001 drilling before 29 January 2018.

Direction of Photo: Northwest



29 January 2018

Photo 8:

AFFF Release Area 03; Moving bins from the temporary staging area near MW03001.

Direction of Photo: Northwest





Photo 9:

Staging of soil bins and at Davis Monthan Air Force Base-Landfill (LF-01)

Direction of Photo: Southeast

